EOSDIS Core System Project

ECS Project Training Material
Volume 8: Ingest

April 2000

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Preface€

This document is a contract deliverable with an approval code of 3. As such, it does not require formal Government approval. This document is delivered for information only, but is subject to approval as meeting contractual requirements.

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Abstract

This is Volume 8 of a series of lessons containing the training material for Release 5B of the Earth Observing System Data and Information System (EOSDIS) Core System (ECS). This lesson provides a detailed description of the process for receiving, logging, and marking all non-electronic media for processing and storage in the ECS system. Methods for monitoring performance of data requests, managing/processing ingest data, and ingesting hard media/metadata are also reviewed.

Keywords: training, instructional design, course objective, Ingest

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Introduction

Identification

Training Material Volume 8 is part of Contract Data Requirements List (CDRL) Item 129, whose requirements are specified in Data Item Description (DID) 625/OP3 and is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), Contract (NAS5-60000).

Scope

Training Material Volume 8 describes the process and procedures for ingest of data into ECS. This lesson is designed to provide the operations staff with sufficient knowledge and information to satisfy all lesson objectives.

Purpose

The purpose of this Student Guide is to provide a detailed course of instruction that forms the basis for understanding Ingest. Lesson objectives are developed and will be used to guide the flow of instruction for this lesson. The lesson objectives will serve as the basis for verifying that all lesson topics are contained within this Student Guide and slide presentation material.

Status and Schedule

This lesson module provides detailed information about training for Release 5B. Subsequent revisions will be submitted as needed.

Organization

This document is organized as follows:

Introduction:	The Introduction presents the document identification, scope, purpose, and organization.
Related Documentation:	Related Documentation identifies parent, applicable and information documents associated with this document.
Student Guide:	The Student Guide identifies the core elements of this lesson. All Lesson Objectives and associated topics are included.
Slide Presentation:	Slide Presentation is reserved for all slides used by the instructor during the presentation of this lesson.

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Related Documentation

Parent Document

The parent document is the document from which this ECS Training Material's scope and content are derived.

423-41-01   Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work

Applicable Documents

The following documents are referenced within this ECS Training Material, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this document:

420-05-03   Goddard Space Flight Center, Earth Observing System (EOS) Performance Assurance Requirements for the EOSDIS Core System (ECS)

423-41-02   Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)

Information Documents

Information Documents Referenced

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

609-CD-510   Release 5B Operations Tools Manual for the ECS Project

611-CD-510   Mission Operation Procedures for the ECS Project

Information Documents Not Referenced

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

305-CD-510   Release 5B Segment/Design Specification for the ECS Project

311-CD-520   Release 5B Data Management Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-521	Release 5B INGEST Database Design and Database Schema Specifications for the ECS Project
311-CD-522	Release 5B Interoperability Subsystem (IOS) Database Design and Database Schema Specifications for the ECS Project
311-CD-523	Release 5B Planning and Data Processing Subsystem Database Design and Schema Specifications for the ECS Project
311-CD-524	Release 5B Science Data Server Database Design and Schema Specifications for the ECS Project
311-CD-525	Release 5B Storage Management and Data Distribution Subsystems Database Design and Database Schema Specifications for the ECS Project
311-CD-526	Release 5B Subscription Server Database Design and Schema Specifications for the ECS Project
311-CD-527	Release 5B Systems Management Subsystem Database Design and Schema Specifications for the ECS Project
311-CD-528	Release 5B Registry Database Design and Schema Specifications for the ECS Project
313-CD-510	Release 5B ECS Internal Interface Control Document for the ECS Project
334-CD-510	5B Science System Release Plan for the ECS Project
601-CD-001	Maintenance and Operations Management Plan for the ECS Project
603-CD-003	ECS Operational Readiness Plan for Release 2.0
604-CD-001	Operations Concept for the ECS Project: Part 1-- ECS Overview
604-CD-002	Operations Concept for the ECS Project: Part 2B - ECS Release B
605-CD-002	Release B SDPS/CSMS Operations Scenarios for the ECS Project
607-CD-001	ECS Maintenance and Operations Position Descriptions
152-TP-001	ACRONYMS for the EOSDIS Core System (ECS) Project
152-TP-003	Glossary of Terms for the EOSDIS Core System (ECS) Project
211-TP-005	Transition Plan 4PX to 4PY, 4PY to 5A, and 5A to 5B for the ECS Project
220-TP-001	Operations Scenarios - ECS Release B.0 Impacts
500-1002	Goddard Space Flight Center, Network and Mission Operations Support (NMOS) Certification Program, 1/90

535-TIP-CPT-001   Goddard Space Flight Center, Mission Operations and Data Systems Directorate (MO&DSD) Technical Information Program Networks Technical Training Facility, Contractor-Provided Training Specification

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Ingest Overview€

Lesson Overview

This lesson provides you with the process for Ingest status monitoring, use of Ingest operator tools, and Ingest processing. It provides practical experience in using the tools you need for monitoring the ingest history log, monitoring/controlling ingest requests, setting ingest parameters, and managing ingest processing.

Lesson Objectives

Overall Objective - The overall objective of this lesson is for Maintenance and Operations (M&O) personnel to develop proficiency in the procedures that apply to data ingest in the Earth Observing System Data and Information System (EOSDIS) Core System (ECS).

Condition - The student will be given a workstation console with access to ECS ingest graphical user interface (GUI) tools, a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - The student will use the tools to perform ingest in accordance with the prescribed procedures without error.

Specific Objective 1 - The student will describe the ingest function, providing a general statement of the ingest responsibility in ECS and an overview of the ingest process.

Condition - The student will be given a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - The student will correctly state the ingest role in ECS, state at least three (3) ingest activities, identify four (4) types of ingest automated messages, identify four (4) categories of ingest, and identify at least two (2) types of data transfer for ingest.

Specific Objective 2 - The student will perform the steps involved in launching the ECS Ingest GUI.

Condition - The student will be given a statement of the requirements for launching the ECS Ingest GUI, access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell and launch the ECS Ingest GUI in the specified mode.

Specific Objective 3 - The student will perform the steps involved in launching the Storage Management Control GUI.

Condition - The student will be given a statement of the requirements for launching the Storage Management Control GUI, access to the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell and launch the Storage Management Control GUI in the specified mode.

Specific Objective 4 - The student will perform the steps involved in monitoring and controlling ingest requests.

Condition - The student will be given a statement of the requirements for monitoring and controlling ingest requests (including the identification of a request by date and/or external data provider), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Monitor/Control tab, select the appropriate set of ingest requests to monitor, observe ingest request processing, resume/cancel requests as directed, and respond to questions concerning the current status of ingest requests.

Specific Objective 5 - The student will perform the steps involved in viewing the ingest history log using the Ingest GUI History Log screen.

Condition - The student will be given a statement of the requirements for viewing the ingest history log (including the identification of a specific request to be viewed), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI History Log tab; select the specified time period, data provider, data type, and/or final request status; select the specified type of report (i.e., Detailed Report or Summary Report); display the history log report, and respond to questions concerning the history log report.

Specific Objective 6 - The student will perform the steps involved in verifying the archiving of ingested data.

Condition - The student will be given a statement of the requirements for verifying the archiving of ingested data and access to the File and Storage Management System (FSMS) (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host, change directory to the directory containing the archive data, list the directory contents, and compare End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Specific Objective 7 - The student will perform the steps involved in cleaning the polling directories.

Condition - The student will be given a statement of the requirements for cleaning the polling directories and access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host, type the command to start the clean-up script, and type appropriate responses to clean-up script prompts.

Specific Objective 8 - The student will perform the steps involved in performing hard media ingest from an 8mm and/or D3 tape cartridge.

Condition - The student will be given a statement of the requirements for performing hard media ingest from an 8mm and/or D3 tape cartridge, a tape cartridge containing data to be ingested, access to an appropriate tape drive, and access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Media Ingest tab, identify the type of medium, enter the stacker ID (if applicable), insert the tape cartridge, enter the stacker slot ID (if applicable), select the data provider, enter the media volume ID, identify the delivery record file location, and initiate and monitor the data transfer.

Specific Objective 9 - The student will perform the steps involved in scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly.

Condition - The student will be given a statement of the requirements for scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly, a document to be scanned, access to the scanning equipment and software, a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will start the scanning program, select the **Save Image Defer OCR** option, load documents into the HP ScanJet feeder, start the scanning process, save the document, open the scanned document, and review the document to verify that it has been properly scanned.

Specific Objective 10 - The student will perform the steps involved in modifying external data provider information using the Ingest GUI Operator Tools: Modify External Data Provider/User Information screen.

Condition - The student will be given a statement of the requirements for modifying external data provider information (including the information to be modified), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Operator Tools: Modify External Data Provider/User Information tab, select the specified data provider, modify the data provider information, and save the changes to data provider information.

Specific Objective 11 - The student will perform the steps involved in modifying Ingest Subsystem parameters using the Ingest GUI Operator Tools: Modify System Parameters screen.

Condition - The student will be given a statement of the requirements for modifying Ingest Subsystem parameters (including the parameter data to be modified), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Operator Tools: Modify System Parameters tab, modify the specified Ingest operating parameters, and save the changes to Ingest operating parameters.

Specific Objective 12 - The student will perform the steps involved in transferring files using the Ingest GUI Operator Tools: File Transfer screen.

Condition - The student will be given a statement of the requirements for transferring files (including the identification of files to be transferred), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Operator Tools: File Transfer tab, select either Build SMC History Files or Generic File Transfer (as specified), select the specified file(s) for transfer, enter the specified destination, and initiate and monitor the file transfer.

Specific Objective 13 - The student will perform the steps involved in modifying Ingest Subsystem parameters in configuration files.

Condition - The student will be given a statement of the requirements for modifying Ingest Subsystem parameters (including the parameter data to be modified), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell, access the directory containing the appropriate .CFG file, edit the applicable parameter(s), and save the file.

Specific Objective 14 - The student will perform the steps involved in modifying Ingest Subsystem parameters using isql.

Condition - The student will be given a statement of the requirements for modifying Ingest Subsystem parameters (including the parameter data to be modified), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell, log in to the appropriate Ingest database using isql commands, check the current contents of the relevant column/table, update the relevant column/table with the new value(s), check the current contents of the relevant column/table, and exit from isql.

Specific Objective 15 - The student will perform the steps involved in troubleshooting and recovering from ingest problems.

Condition - The student will be given a statement of the requirements for troubleshooting and recovering from ingest problems (including a specific failure to troubleshoot), access to the previously launched ECS Ingest GUI in the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*, and a copy of 611-CD-510-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the ECS Ingest GUI Monitor/Control tab, identify the faulty ingest request, review the information concerning the ingest fault, and perform the appropriate recovery procedure depending on the nature of the problem

Importance

This lesson provides students who will be Ingest/Distribution Technicians at the Distributed Active Archive Centers (DAACs) with the knowledge and skills needed for effective ingest of ECS data. It ensures development of operational capability that optimizes ingest performance to realize the potential for reliability, availability, maintainability, and security in data receipt and placement in the storage hierarchy. It provides thorough preparation for the following Ingest functions (among others):

- Automated network ingest.

- Automated polling ingest.

- Monitoring/controlling ingest request processing.

- Hard media ingest.

- Adjusting ingest tunable parameters.

- Troubleshooting and recovering from ingest problems.

Ingest Concepts

ECS Context

Ingest for ECS is accomplished at the Distributed Active Archive Centers (DAACs). The people involved in Ingest activities are Ingest/Distribution Technicians.

The ECS Context Diagram (Figure 1) shows the relationships among subsystems within the Science Data Processing component of ECS. The Ingest Subsystem (INS) is the point of entry to ECS for data from external data providers. The Data Server Subsystem (DSS) manages access to the data repositories, where ingested data are stored. Of course, the context diagram shows a generalized (high-level) view of ECS. The Ingest architecture diagram (Figure 2) focuses on the Ingest process and its relationships with other subsystems. The Storage Management (STMGT) and Science Data Server (SDSRV) architecture diagrams (Figures 2 and 3 respectively) focus on those two individual computer software configuration items (CSCIs) of the Data Server Subsystem and their relationships with each other and with other subsystems.

- Ingest (Figure 2) transfers data into ECS, performs preprocessing, and forwards the data to DSS for archiving.

- Storage Management (Figure 3) is the part of the DSS that stores, manages, and retrieves data files on behalf of other parts of the Science Data Processing components (including Ingest).

  - Provides interfaces (which allow Ingest to obtain access to disk space) and peripheral devices (e.g., tape drives), which are resources that are shared with Data Distribution.

  - Provides for the copying of files into the archive for permanent storage.

- Science Data Server (Figure 4) is the part of the DSS that manages and provides user access to collections of non-document Earth Science data.

  - Checks/verifies metadata.

  - Issues requests to the STMGT and Data Distribution (DDIST) CSCIs to perform storage and distribution services in support of the processing of service requests, such as insertion of data into the archive or distribution of data products from the archive.

Ingest Subsystem

The Ingest Subsystem is the part of the ECS Science Data Processing component that the Ingest/Distribution Technician uses when getting data from external data providers into ECS. The Ingest/Distribution Technician has access to Ingest primarily through the ECS Ingest graphical user interface (GUI).

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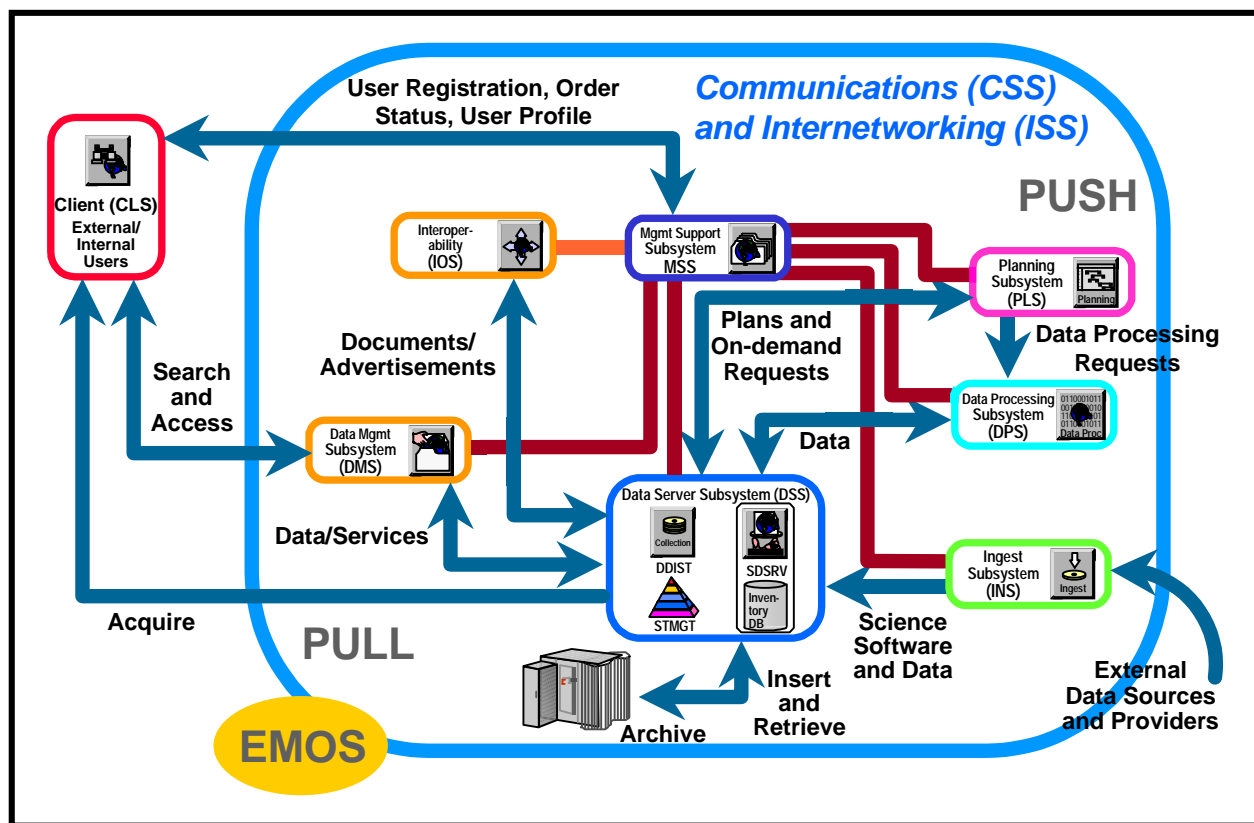
Figure 1. ECS Context Diagram

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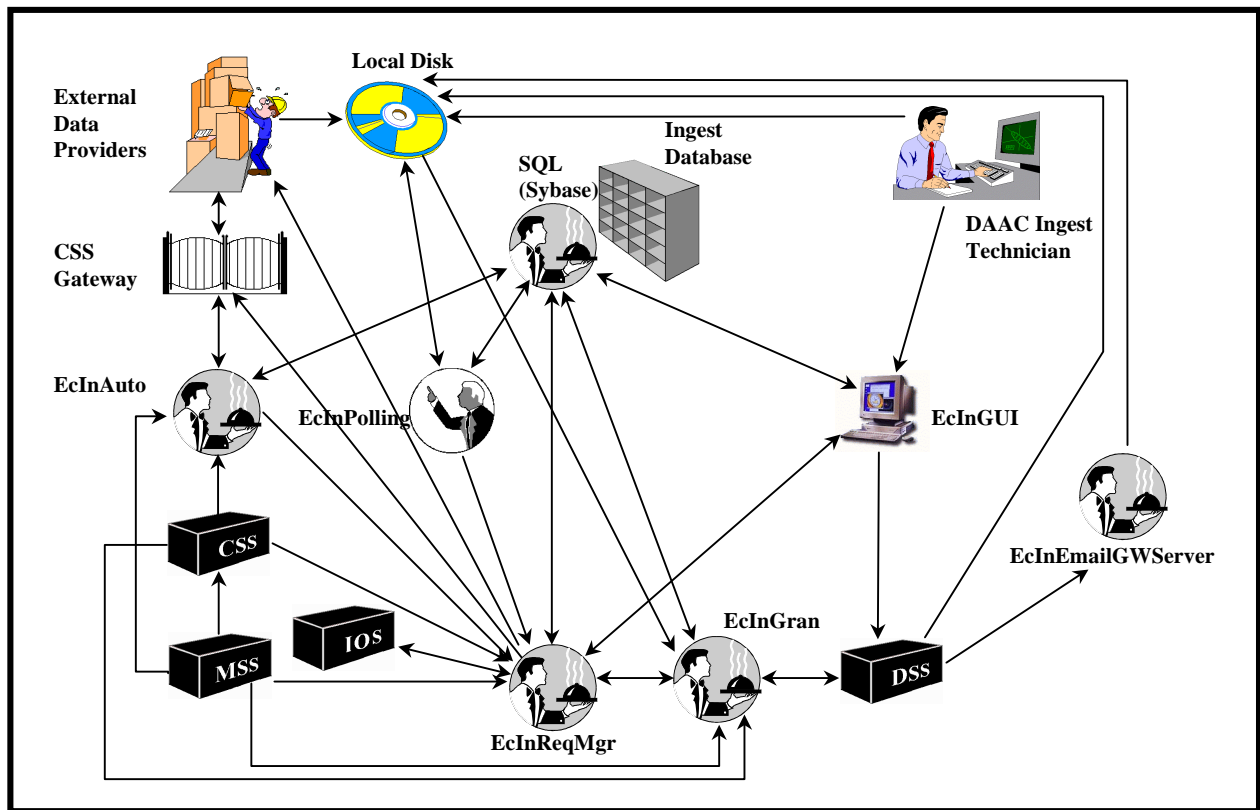
Figure 2. Ingest Subsystem (INS) Architecture Diagram
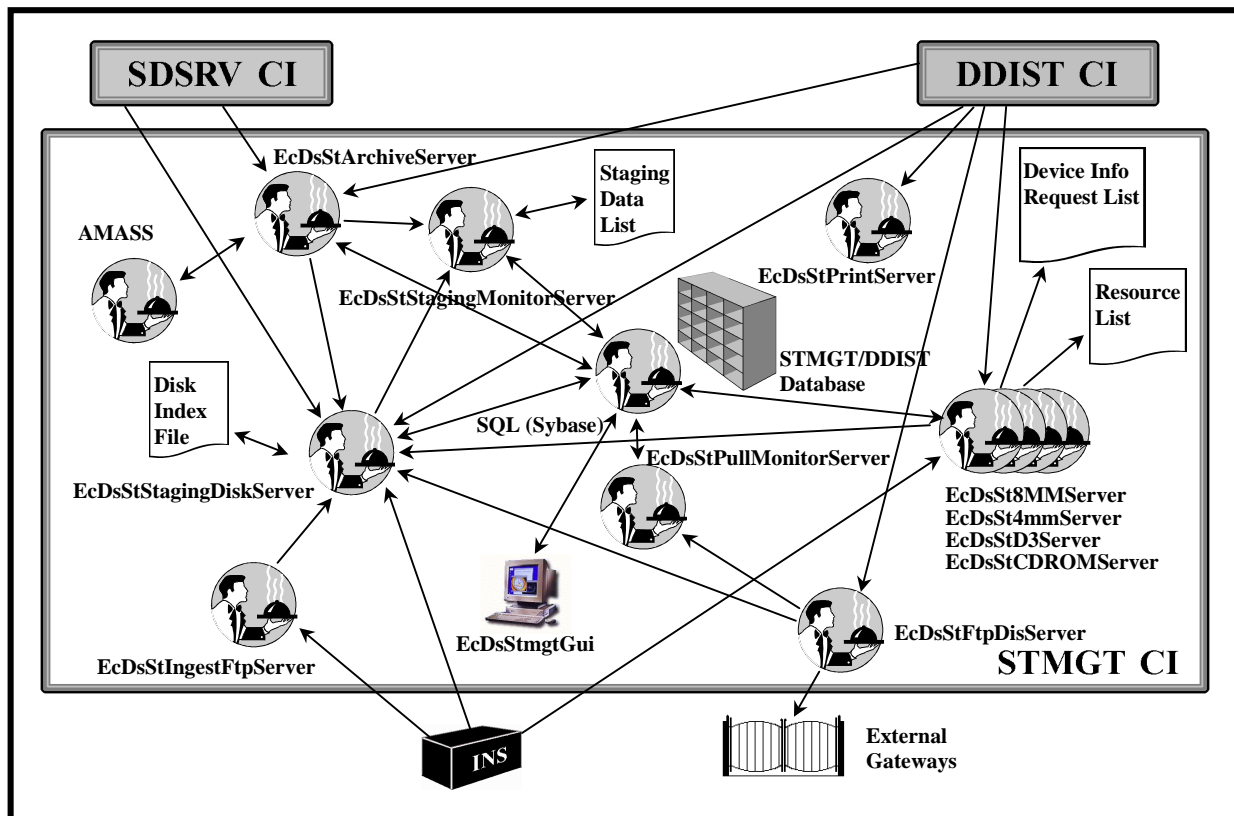
Figure 3. Storage Management (STMGT) CSCI Architecture
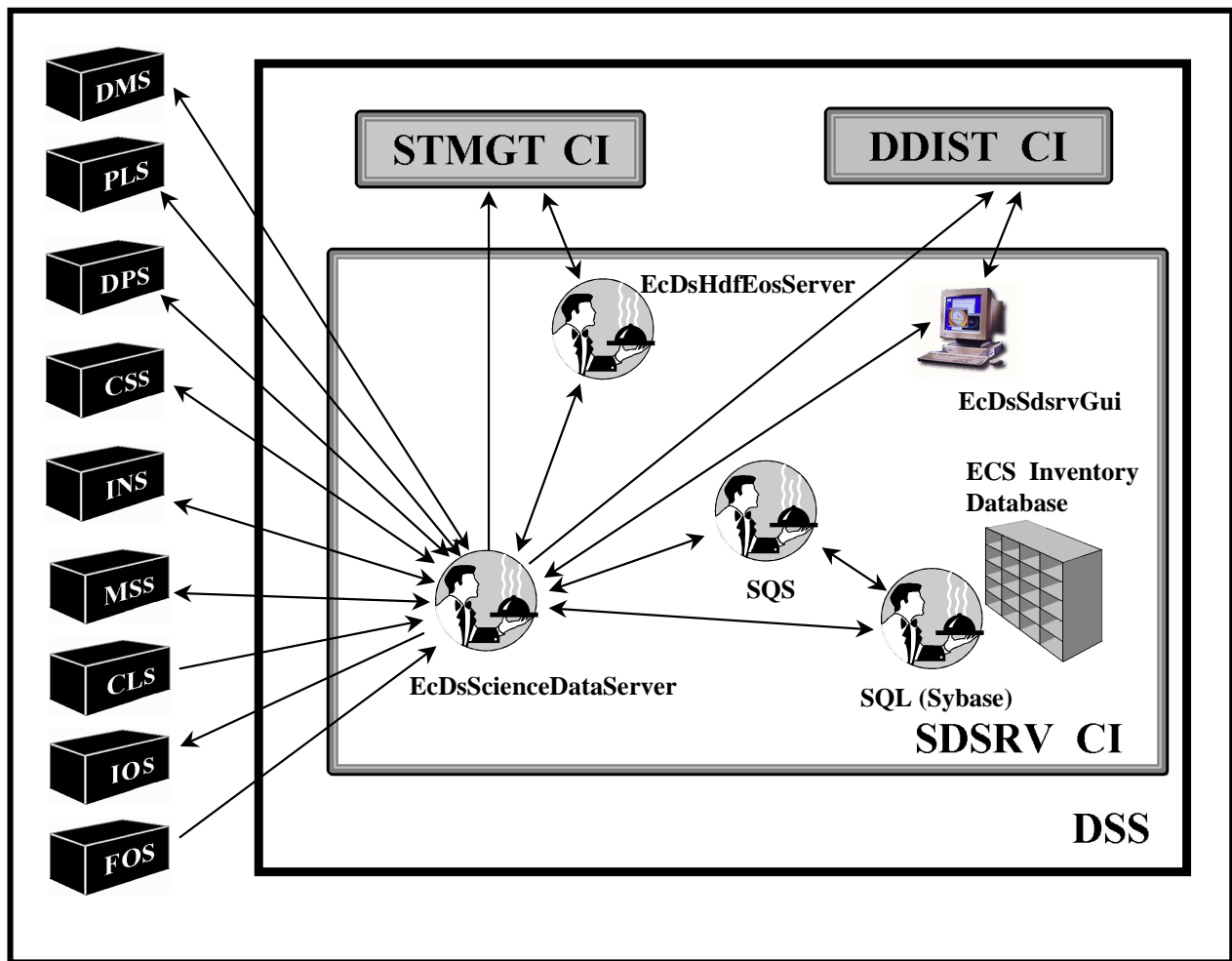
Figure 4. Science Data Server (SDSRV) CSCI Architecture

The Ingest Subsystem (INS) is composed of just one CSCI; i.e., INGST.   (The designation "INGST" is derived from **ING**E**ST**.)   The subsystem has the following major components as shown in Figure 2:

- Automated Network Ingest Interface (EcInAuto).

    – Server that provides basic capability to ingest data electronically from an external source.

- Automated Polling Ingest Client Interface (EcInPolling).

    – Clients that create polling requests, detect new files in a specified external location, create and submit Ingest requests.

- Ingest Request Manager (EcInReqMgr).

    – Server that manages Ingest request traffic and processing.

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- Ingest Granule Server (EcInGran).

  – Server that provides services for required preprocessing of data and subsequent insertion into the Data Server Subsystem.

- Ingest E-Mail Parser (EcInEmailGWServer).

  – Server that receives e-mail distribution notification messages, stores e-mail messages into files, detects new files of interest at a regular time interval on a local disk, creates a polling request, and puts the request on a local disk location.

- ECS Ingest GUI (EcInGUI).

  – GUI that provides the Ingest/Distribution Technician with the capability to perform physical media ingest, monitor the Ingest history log, monitor the status of ongoing ingest requests, and modify Ingest configuration parameters.

- Sybase Structured Query Language (SQL) Server.

  – Commercial off-the-shelf (COTS) software application that stores and provides access to Ingest Subsystem internal data; i.e., the Ingest operations databases.

Ingest personnel use the following start-up script that is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Operations Workstation:

- EcInGUIStart.

  – Launches the ECS Ingest GUI.

The following start-up scripts in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Ingest Server host, Access/Process Coordinators (APC) Server host, and/or Interface Server hosts are typically called by other applications and are not normally invoked directly by Ingest personnel:

- EcInAutoStart.

  – Starts the Automated Network Ingest Server.

- EcInGranStart.

  – Starts the Ingest Granule Server.

- EcInIngestAppStart.

- EcInInitPasswdStart.

- EcInPollingStart.

  – Starts the Ingest polling clients.

- EcInReqMgrStart.

  – Starts the Ingest Request Manager.

- EcInStart.

- EcInEmailGWServerStart.
  - Starts the Ingest E-Mail Parser.

In addition to the preceding start-up scripts the following scripts are available in the /us/ecs/*MODE*/CUSTOM/utilities directory on the Ingest Server host:

- EcInEDOSCleanupMain (available on the APC Server host and Operations Workstation also).
  - Deletes files older than a specified number of days from the EDOS polling directory or directories that is/are specified as argument(s) to the command.

- EcInPollClean (available on the APC Server host and Operations Workstation also).
  - Delete files older than a specified number of days from the polling directory or directories that is/are specified as argument(s) to the command.

- EcInCopyAM1ANC (available on the APC Server host also).

- EcInDbBuild.
  - Supports installation of the Ingest Subsystem database, including database objects such as tables, stored procedures, triggers, constraints, and defaults. The script automatically invokes additional scripts; i.e., EcInDbDrop, EcInDbTables.sql, EcInDbUser, EcInDbPermissions, and EcInDbCheckObjects.sql.

- EcInDbDrop.
  - Supports the-installation of the Ingest Subsystem database. Drops/deletes all objects and users from the specified database. Invoked through ECS Assistant from within EcInDbBuild. Can be executed individually, but the routine is not compatible with database recovery.

- EcInDbDump.
  - Dumps the specified database and the master database to a flat file that can be used for database recovery. Dumping the database allows the operator to recover from the dumped state if the installation or patch routine fails. It is highly recommended to perform the dump routine before any installation or patch routines are run. The Database Operator (DBO) executing this script must have sso_role (System Security Officer) privileges in order to dump the databases or the dump fails.

- EcInDbDumpTrans.

  – Dumps the transaction log. Dumping the database allows the operator to recover from the dumped state if the installation or patch routine fails. It is highly recommended to perform the dump routine before any installation or patch routines are run. The DBO executing the script must have sso_role (System Security Officer) privileges in order to dump the databases or the dump fails.

- EcInDbLoad.

  – Loads a database from a backup device or file based on date-time stamp for database recovery purposes. Invoked through ECS Assistant.

- EcInDbLoadTrans.

  – Loads a transaction log from a backup device or file based on date-time stamp for transaction log recovery purposes.

- EcInDbPatch.

  – Used in upgrading an existing Ingest database to the next valid database version level. Patches any modified or new database (dB) structures to the database without having to re-install the entire dB. Allows for existing data to be maintained. Invoked through ECS Assistant.

- EcInGWClientDrvStart (available on the APC Server host also).

  – Starts the GwClient, which is used in testing the Automated Network Ingest Interface (EcInAuto) (e.g., for submitting Data Availability Notices for Landsat-7 data).

Storage Management (STMGT)

The Data Server Subsystem STMGT CSCI manages all physical storage resources for all DSS components including the following items:

- Tape robotic archive.

- Random Array of Inexpensive Disks (RAID) disk cache.

- On-line storage.

- Peripheral devices (e.g., various types of magnetic tape drives) used for ingesting and distributing data.

During data ingest, STMGT provides interfaces, which allow Ingest to obtain access to disk space, file transfer protocol (ftp) services, and peripheral devices (e.g., tape drives) which are shared resources. STMGT archive code provides for the copying of files into the archive for permanent storage.

STMGT has the following major components (as shown in Figure 3):

- Archive Server (EcDsStArchiveServer).

  – Server that provides access to stored data.

  – There can be multiple archive servers running at a given site, each with its own type of data or storage medium.

- Staging Servers.

  – Staging Monitor Server (EcDsStStagingMonitorServer) - Server that manages a group of data files that have been retrieved from the archive and placed into a cache area on staging disk; it maintains a list of the data files so that subsequent data retrieval requests are fulfilled immediately without requiring an additional archive access.

  – Staging Disk Server (EcDsStStagingDiskServer) - Server that manages shared disk space; it allows clients to allocate disk space and reserve files between staging directories and from non-staging to staging directories.

- Resource Managers.

  – 8mm Server (EcDsSt8MMServer) - Server that schedules access to the 8mm cartridge tape drives shared between Ingest and Data Distribution; maintains a request queue based on priority and time of request receipt.

  – D3 Server (EcDsStD3Server) - Server that schedules access to the D3 cartridge tape drive(s); maintains a request queue.

  – Ingest FTP Server (EcDsStIngestFtpServer) - Server that schedules access for Ingest file transfer protocol (ftp); maintains a request queue.

  – FTP Distribution Server (EcDsStFtpDisServer) - Server that schedules access for distribution ftp; maintains a request queue.

  – Print Server (EcDsStPrintServer) - Server that manages printing out packing list files associated with distribution requests.

- Pull Monitor Server (EcDsStPullMonitorServer).

  – Server that manages the files in the user pull area; deletes files as they are either retrieved (i.e., electronically pulled) from the user pull area or become stale (when their time-out periods expire).

- Storage Management Control GUI (EcDsStmgtGui).

  – GUI to the Storage Management/Data Distribution shared database; allows the technician to set parameters and configurations that control the STMGT servers.

- Sybase SQL Server.

  – COTS software application that handles insertion and retrieval of data concerning storage management activities into/from the STMGT/DDIST database.

- Archival Management and Storage System (AMASS).

  – COTS software application that supports the functioning of the data repository hardware (e.g., archive robotics).

Ingest personnel use the following start-up script that is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Distribution Server host:

- EcDsStmgtGuiStart.

  – Launches the Storage Management Control GUI.

The following start-up scripts in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Ingest Server host, Access/Process Coordinators (APC) Server host, Distribution Server host, File and Storage Management System (FSMS) Server host, and/or Working Storage host are typically called by other applications and are not normally invoked directly by Ingest personnel:

- EcDsStIngestFtpServerStart.

  – Starts the Ingest ftp server.

- EcDsStStagingDiskServerStart.

  – Starts a staging disk server.

- EcDsStStart.

- EcDsStStorageMgmtAppStart.

- EcEcsAppStart.

- EcDsStArchiveServerStart.

  – Starts an archive server.

- EcDsStFtpDisServerStart.

  – Starts an ftp distribution server.

- EcDsStPullMonitorServerStart.

  – Starts a pull monitor server.

- EcDsStStagingMonitorServerStart.

  – Starts a staging monitor server.

- EcDsSt8MMServerStart.

  - Starts the 8mm (Stacker) Server.

- EcDsStD3ServerStart.

  - Starts the D3 (Drive) Server.

- EcDsStPrintServerStart.

  - Starts the Print Server.

In addition to the preceding applications the following scripts are available in the /us/ecs*MODE*/CUSTOM/utilities directory on a variety of hosts, including the APC Server host, FSMS Server host, and/or Working Storage host:

- EcDsCheckArchive.

- EcDsStConfigVolGrps.

- EcDsStConfigVolGrps.

- EcDsStDbBuild.

- EcDsStDbDrop.

- EcDsStDbDump.

- EcDsStDbDumpTrans.

- EcDsStDbLoad.

- EcDsStDbLoadTrans.

- EcDsStDbPatch.

- EcDsStFilesPerTapeUtility.

- EcDsStVolGrpCreateMain.pl.

Science Data Server (SDSRV)

The SDSRV CSCI is the part of the Data Server Subsystem that issues requests to the STMGT and Data Distribution (DDIST) CSCIs to perform storage and distribution services in support of the processing of service requests, such as insertion of data into the archive or distribution of data products to requesters (including other ECS subsystems). The Ingest/Distribution Technician can gain access to SDSRV through the Science Data Server GUI if necessary.

SDSRV has the following major components (as shown in Figure 4):

- Science Data Server (EcDsScienceDataServer).

  − Server responsible for managing collections of Earth Science and related data, and for servicing requests for the storage, search, retrieval, and manipulation of data within those collections.

- Hierarchical Data Format (HDF) EOS Server (EcDsHdfEosServer).

  − Server that provides science data subsetting capabilities for Earth Science data that have been configured with a subsetting service.

- Science Data Server GUI (EcDsSdSrvGui).

  − GUI that allows the operator to monitor active EcDsScienceDataServer requests and receive descriptor files and dynamic link libraries (dll) for configuring Earth Science Data Types (ESDTs) in the EcDsScienceDataServer.

- Sybase Spatial Query Server (SQS).

  − COTS software application that provides the capability to manage spatial data types of earth science catalog metadata (including specialized spatial searches) for the ECS Science Data Processing Segment (SDPS).

- Sybase Structured Query Language (SQL) Server.

  − COTS software application that provides the management of spatial data types of an earth science catalog of metadata for the SDPS. Includes capabilities for searching and storing the catalog.

The following start-up script is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the SDSRV Server host and the Operations Workstation:

- EcDsSdSrvGuiStart.

  − Launches the Science Data Server GUI.

In addition to the preceding applications the following scripts are available in the /us/ecs/*MODE*/CUSTOM/utilities directory on the SDSRV Server host:

- EcTsDsClientDriverStart.

- EcDsSrConvertEvt.

- EcDsSrDbBuild.

- EcDsSrDbDrop.

- EcDsSrDbDump.

- EcDsSrDbLoad.

- EcDsSrDbMigrate.

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- EcDsSrDbPatch.

- EcDsSrDbValids.

The Ingest Process

The Ingest function is characterized by a collection of hardware and software that supports receiving data and transferring it to the appropriate ECS repositories on either a routine or ad hoc basis. Data to be ingested may be of several types including:

- Science data.

- Science software packages.

Ingest triggers subsequent archiving of the data, which may activate a trigger for data processing (e.g., if there are subscriptions for the data being ingested).

- Flexibility supports various data formats and structures, external interfaces, and ad-hoc ingest tasks.

- Software configuration is called an ingest client.

    – Single interface point for receipt of all external data to be archived within the Science Data Processing component of ECS.

    – Client performs ingest data preprocessing, metadata extraction, and metadata validation on any incoming data, as required.

Ingest is one of the responsibilities of DAAC Ingest/Distribution Technicians. They monitor the different types of automated ingest and set up ingest from hard media (e.g., tape cartridges).

Ingest Activities

The Ingest function brings data into ECS from external data providers. The following data providers are representative:

- Landsat Processing System (LPS).

- Landsat 7 Image Assessment System (IAS).

- EOS Data and Operations System (EDOS).

- Science Computing Facilities (SCFs).

- Science Investigator-Led Processing Systems (SIPS).

- National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS).

    – Central Environmental Satellite Computer System (CEMSCS) data.

    – National Climatic Data Center (NCDC) data.

- NOAA National Centers for Environmental Prediction (NCEP).

Ingest includes the following activities:

- Data transfer and transmission checking.

- Data preprocessing (including data conversions if required).

- Metadata extraction (as required)

- Metadata validation (as required).

- Transferring ingested data to the Data Server Subsystem for long-term storage in the archive.

Ingest provides a single point of monitoring and control of data received from data providers outside the DAAC. The nominal ingest process is fully automated, with minimal operator intervention.

Ingest Categories

Ingest supports a wide variety of external interfaces. Different interfaces may use different protocols for data transfer, which is why there are different ingest clients. However, there are some common characteristics that permit categorizing the interfaces:

- Automated network ingest.

  - Used at Earth Resources Observation Systems (EROS) Data Center (EDC) only

  - Data provider is the Landsat Processing System (LPS).

  - Data Availability Notice (DAN) from LPS initiates ingest.

  - ECS "gets" data from an LPS processor staging area via ftp, within a specified time window.

- Automated polling ingest.

  - With delivery record.

    · ECS periodically checks a network location for a delivery record file, which indicates the availability of data for ingest.

    · ECS "gets" data (within a specified time window) from the applicable directory on an ECS staging server, where the data provider will have put the data.

    · Data providers include EDOS, IAS, SCFs, SIPS, and NOAA NCEP.

  - Without delivery record.

    · ECS periodically checks a network location for available data.

- All data at the location are treated as one specific data type, one file per granule.

- ECS "gets" data from the network location, within a system-tunable time period.

- Once retrieved, the file is compared with the last version that was ingested. If the new file is different from the previous one, it is ingested as a new file. If it is identical to the previous one, it is not ingested.

- Data providers include NOAA NESDIS CEMSCS.

- Hard media ingest by the Ingest/Distribution Technician.

  - Ingest from hard media (e.g., tape cartridges); from authorized institutions or other providers, or as backup to other types of ingest (e.g., polling).

  - Manual transfer requires file/record information equivalent to DAN/PDR either furnished by the data provider or constructed by the Ingest/Distribution Technician.

  - Data providers include SCFs, NOAA NESDIS NCDC, and the Ground Data System (GDS) for the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument on the Terra (AM-1) satellite.

- Cross-Mode Ingest Interface.

  - Ingest from other DAACs or other modes at the same DAAC.

  - Ingest receives a distribution notice (via e-mail) of data files transferred via the FTP service. The distribution notification is used to create a Delivery Record File that is put in an agreed-upon network location.

  - The polling-with-delivery-record process checks the location for the delivery record files.

Ingest Automated Network Ingest Messages

As illustrated in Figure 5, there are four types of automatically generated electronic messages used in the automated network ingest process (i.e., ingesting data from LPS). They are associated with significant events that occur during an ingest transaction; consequently, their occurrence and content may be useful in troubleshooting problems that may occur with an ingest transaction. The types of messages and their fields are as follows:

- Data Availability Notice (DAN) - Notice sent to Ingest by external data provider specifying data which are available for ingest.

  - Contains the following field groups: message header (2 fields), exchange data unit label (7 fields), DAN label (7 fields), and parameter value statements (as required).
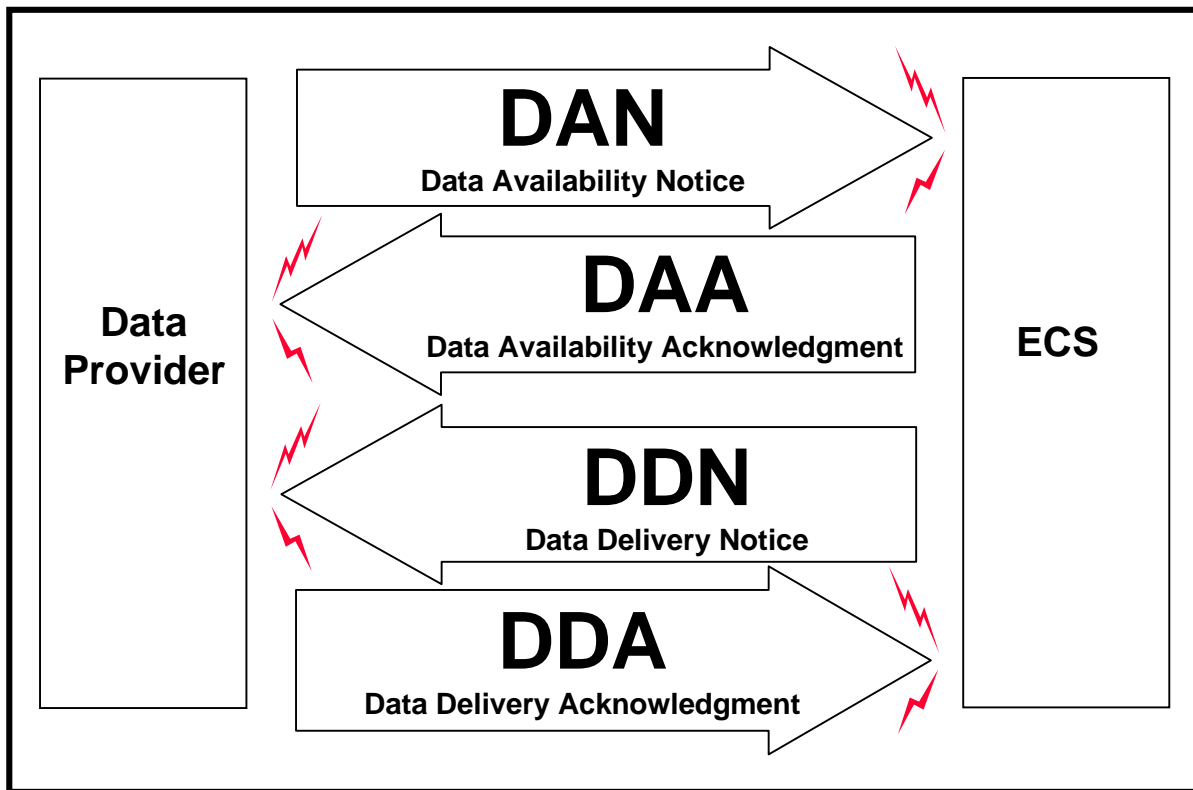
Figure 5. Ingest Automated Network Ingest Messages

- Data Availability Acknowledgment (DAA) - Message sent from Ingest acknowledging the receipt and status of the DAN (including any DAN errors).

  - Contains the following fields: message type, message length, DAN sequence number, disposition, and transfer start time.

- Data Delivery Notice (DDN) - Notice sent from Ingest to the data provider indicating status of the transfer (including problems) and archiving of the data.

  - Contains the following fields: message type, message length, DAN sequence #, disposition, spares, time stamp, and throughput.

- Data Delivery Acknowledgment (DDA) - Message sent to Ingest acknowledging the DDN and terminating the connection.

  - Contains the following fields: message type, message length, DAN sequence #, disposition, and time stamp.

Ingest Polling Messages

As in automated network ingest, messages are passed in polling ingest with delivery record. The exact number and nomenclature of messages depends on the particular data provider's agreement

with ECS as specified in each Interface Control Document (ICD). Unlike the control messages in automated network ingest, which are transmitted using Transmission Control Protocol/Internet Protocol (TCP/IP) during a data exchange session, some of the polling messages are sent by e-mail.

Note that no messages are passed in polling ingest without delivery record.

Figure 6 shows the messages associated with the ingest of Landsat 7 Image Assessment System (IAS) data. The types of messages shown in the figure and similar messages used with other data providers are described as follows:

- Product Delivery Record (PDR) - Notice that is sent to Ingest by external data provider specifying data that are available for ingest.

    − Alternatives include the EDOS Production Data Set (PDS) Delivery Record (PDR) and Expedited Data Set (EDS) Delivery Record (EDR), which perform the same general function.
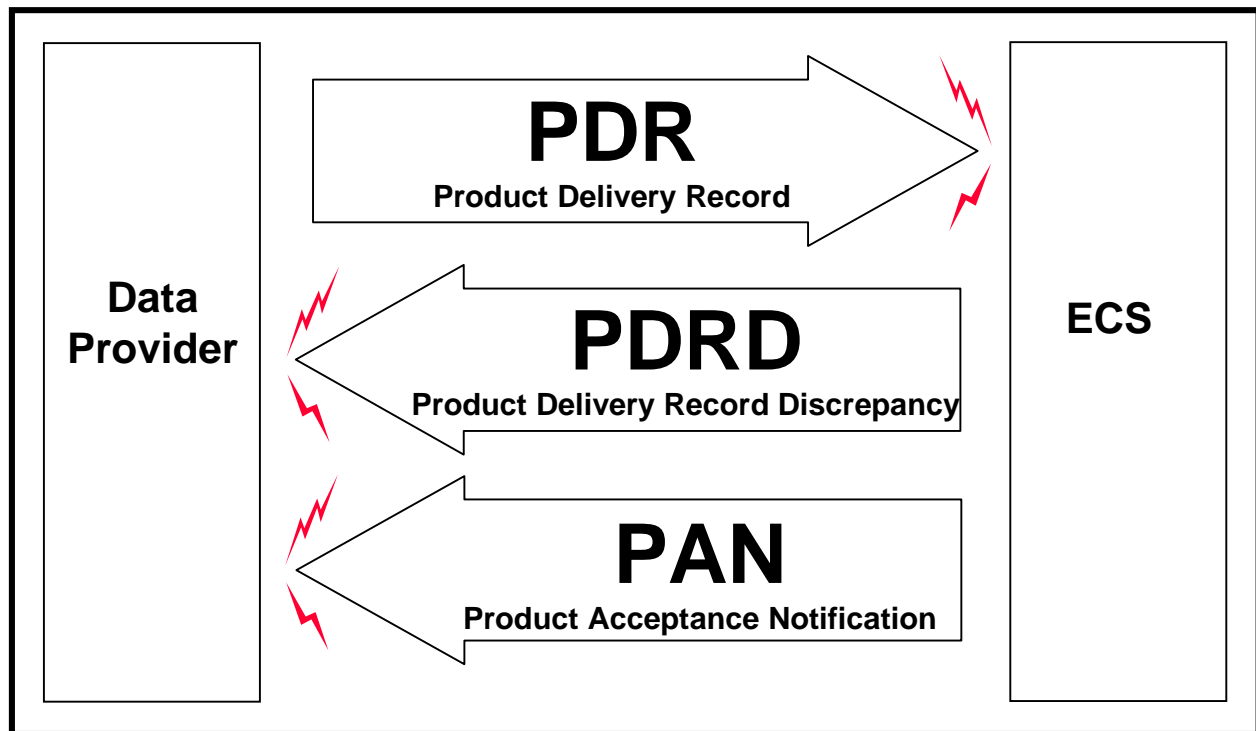

Figure 6. Ingest Polling Messages

- Product Delivery Record Discrepancy (PDRD) - Notice sent from Ingest to the data provider via e-mail indicating that the PDR cannot be successfully validated

    - There is no PDRD in EDOS polling.

- Product Acceptance Notification (PAN) - Message sent via e-mail to the data provider from Ingest announcing the completion of data transfer and archiving and identifying any problems with any of the files specified in the PDR.

    - Alternatives include the EDOS PDS Acceptance Notification (PAN) and EDS Acceptance Notification (EAN), which perform the same general function.

EDOS provides a signal file to indicate that EDOS has completed transfer of a data file so the data can be ingested. The signal file is identified by an ".XFR" extension to the data file name. The content of the signal file consists solely of the full name of the data file.

Data Transfer and Staging

Science data transfer from external data providers uses one of three methods:

- File transfer protocol (ftp) "get" by ECS.

- Ftp "put" by external source.

- Hard media transfer.

Data are staged to a working storage area.

- Many types of ingests use "icl" (Ingest Client) staging areas.

- Media ingest (e.g., from D3 tape) typically involves staging in a "dip" (Distribution and Ingest Peripherals) area.

- Polling ingest for data from EDOS usually entails the use of the polling directory as the staging area.

- Some data are staged directly to working storage ("wks") in the Data Server subsystem.

After the metadata have been extracted and their quality has been checked, data are transferred to an archive data repository in the Data Server Subsystem for long-term storage.

Ingest Graphical User Interface (GUI) Tools

The **ECS Ingest** tool, illustrated in Figure 7, has five major functional areas accessible through tab selection:

- Ingest Intro – has menu for saving and printing screens, and to exit the tool.

- History Log – a view-only screen to review/report completed ingest activities.

- Monitor/Control – to view and update ongoing ingest activities.

- Operator Tools – to view and set ingest thresholds.

- Media Ingest – to ingest data from hard media.
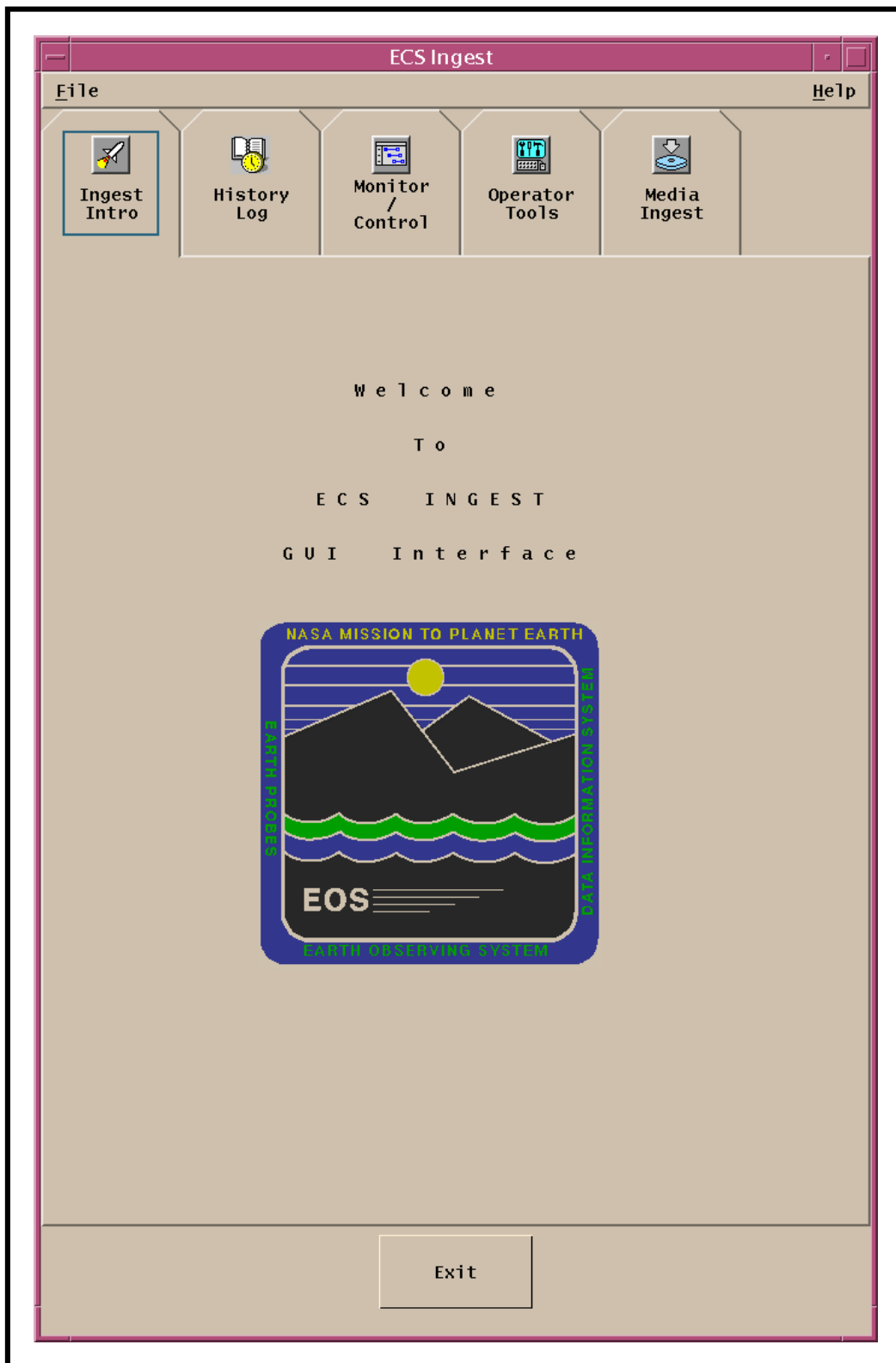
Figure 7. ECS Ingest GUI Intro Screen

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Launching the ECS Ingest and Storage Management€ Control GUIs€

Launching the ECS Ingest GUI

The following software applications are associated with Ingest:

- Automated Network Ingest Interface (EcInAuto).

- Automated Polling Ingest (EcInPolling).

- Request Manager (EcInReqMgr).

- Granule Server (EcInGran).

- ECS Ingest GUI (EcInGUI).

- Ingest E-Mail Parser (EcInEmailGWServer).

- Sybase SQL Server.

There are normally multiple instances of some of the preceding servers (especially the polling and granule servers) in operation at one time. In addition, Ingest depends on a number of related servers, especially Science Data Server and Storage Management servers, to participate in ingest and the insertion of data into the data repositories.

Access to the ECS Ingest GUI is gained through the use of UNIX commands. Launching the ECS Ingest GUI starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

Launching the ECS Ingest GUI

NOTE: Commands in Steps 1 through 6 are typed at a UNIX system prompt.

1   Type **setenv DISPLAY** *clientname***:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the *clientname*.

- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2   Start the log-in to the Operations Workstation by typing **/tools/bin/ssh** *hostname* (e.g., **e0acs03**, **g0acs02**, **l0acs01**, or **n0acs03**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).

- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears; continue with Step 3.

- If you have not previously set up a secure shell passphrase, go to Step 4.

3   If a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears, type your *Passphrase* then press the **Return/Enter** key.

- Go to Step 5.

4   At the <*user@remotehost*>**'s password:** prompt type your *Password* then press the **Return/Enter** key.

5   Type **cd /usr/ecs/***MODE***/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the Ingest GUI startup script (e.g., EcInGUIStart).

- The *MODE* will most likely be one of the following operating modes:

    - OPS (for normal operation).

    - TS1 (for SSI&T).

    - TS2 (new version checkout).

- Note that the separate subdirectories under /usr/ecs apply to different operating modes.

6   Type **EcInGUIStart** *MODE*   then press **Return/Enter**.

- The **ECS Ingest** GUI **Ingest Intro** screen (Figure 7) is displayed.

NOTE: If necessary, the Ingest/Distribution Technician can gain access to Science Data Server through the Science Data Server GUI, which is launched in generally the same manner as the Ingest GUI. The start-up script for the GUI (i.e., EcDsSdSrvGuiStart) should be located on the same host as the ECS Ingest GUI in the appropriate utilities directory (i.e., /usr/ecs/*MODE*/CUSTOM/utilities).

Launching the Storage Management Control GUI

The following software applications are associated with Storage Management:

- Storage Management Control GUI (EcDsStmgtGui).

- Archive Server (EcDsStArchiveServer).

- Staging Monitor Server (EcDsStStagingMonitorServer).

- Staging Disk Server (EcDsStStagingDiskServer).

- 8mm Server (EcDsSt8MMServer).

- D3 Server (EcDsStD3Server).

- Ingest FTP Server (EcDsStIngestFtpServer).

- FTP Distribution Server (EcDsStFtpDisServer).

- Print Server (EcDsStPrintServer).

- Pull Monitor Server (EcDsStPullMonitorServer).

- Sybase SQL Server.

- Archival Management and Storage System (AMASS).

The Storage Management Control GUI can be used in Ingest physical media operations for taking 8mm stackers off line and putting the stackers back on line. It is generally preferable to take a stacker off line prior to loading a tape containing data to be ingested.

Access to the Storage Management Control GUI is gained through the use of UNIX commands. Launching the Storage Management Control GUI starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

Launching the Storage Management Control GUI

NOTE: Commands in Steps 1 through 6 are typed at a UNIX system prompt.

1 Type **setenv DISPLAY** *clientname***:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the *clientname*.

- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2   Start the log-in to the Distribution Server host by typing **/tools/bin/ssh** *hostname* (e.g., **e0dis02**, **g0dis02**, **l0dis02**, or **n0dis02**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).

- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears; continue with Step 3.

- If you have not previously set up a secure shell passphrase; go to Step 4.

3   If a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears, type your *Passphrase* then press the **Return/Enter** key.

- Go to Step 5.

4   At the <*user@remotehost*>**'s password:** prompt type your *Password* then press the **Return/Enter** key.

5   Type **cd /usr/ecs/***MODE***/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the Storage Management Control GUI startup script (e.g., EcDsStmgtGuiStart).

- The *MODE* will most likely be one of the following operating modes:

  - OPS (for normal operation).

  - TS1 (for SSI&T).

  - TS2 (new version checkout).

- Note that the separate subdirectories under /usr/ecs apply to different operating modes.

6   Type **EcDsStmgtGuiStart** *MODE* then press **Return/Enter**.

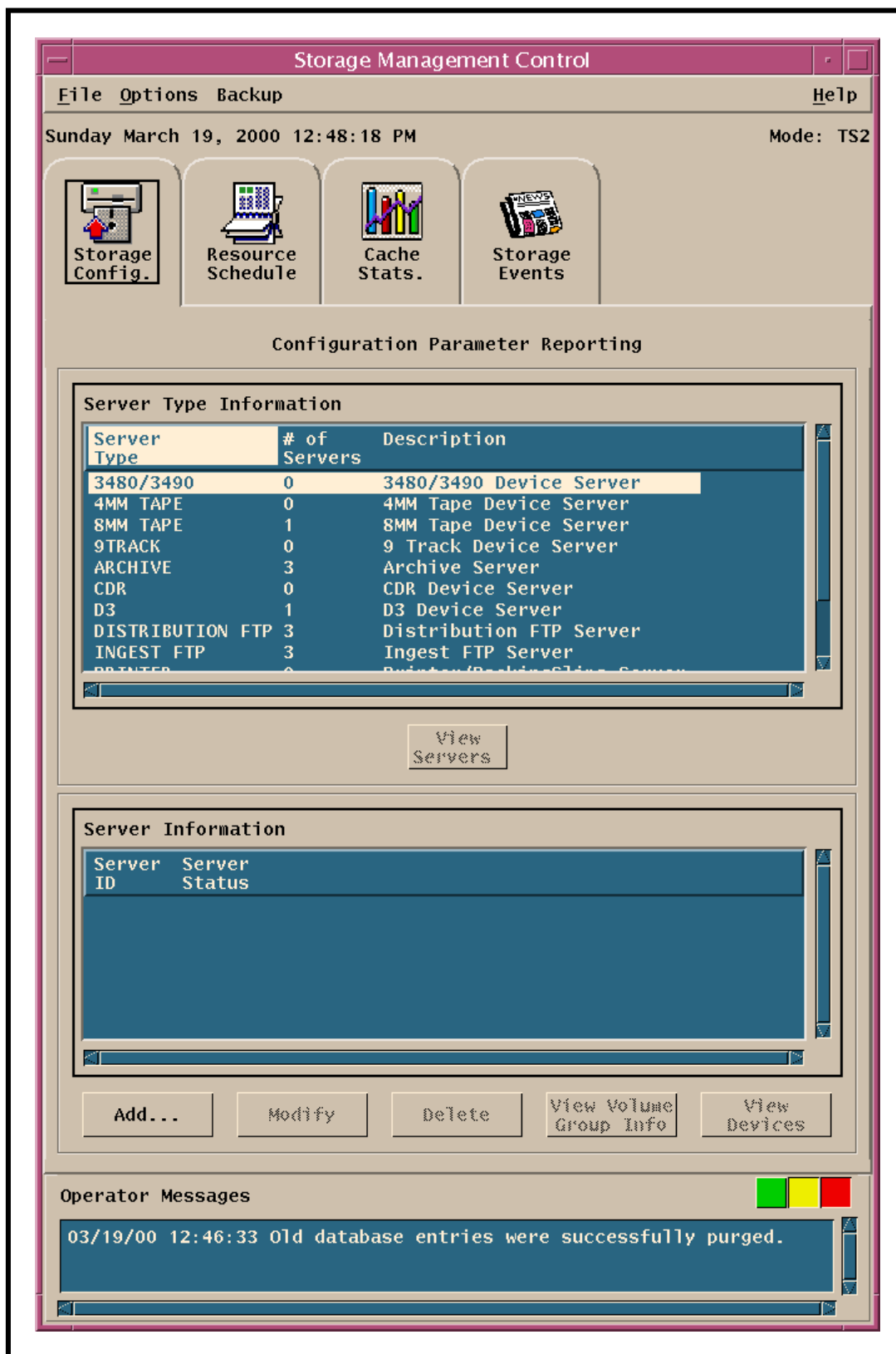- The **Storage Management Control GUI** (Figure 8) is displayed.

Figure 8. Storage Management Control GUI

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Monitoring Ingest Status

In order to see how the Ingest GUI tools are used in ingest status monitoring it helps to look at ingest from the perspective of a DAAC Ingest/Distribution Technician. In addition, it is useful to define some operating conditions that might be encountered on the job. In this case it can be assumed that the system is operating under the following conditions:

- Ingest processes have been started.

- The system is operating normally.

- Data are ready for ingest.

- Several DAN or PDR files have been received and logged by the system; this results in the specific ingest processes being assigned request IDs.

Monitoring Ingest Requests

Figures 9 and 10 illustrate the two main views of the Ingest Monitor/Control Screen. The Monitor/Control Screen can be used to check the status of ingest request processing. The information displayed in the center section of the GUI depends on a selection made in the radio box in the **Search By:** area of the screen:

- **Request ID**

  – Displays a single request if its specific request ID is entered.

- **Data Provider**

  – Displays all requests from a specific data provider, whose identification may either be selected from a pull-down list or be entered using the keyboard.

- **All Requests**

  – Displays all recent requests for which ECS has received a DAN or PDR, and which therefore have been assigned a request ID.

To the right of the radio box are two text entry fields permitting entry of a request ID if the **Request ID** button is selected, or permitting entry or selection of a data provider name if the **Data Provider** button is selected. The center of the window contains a display area for the request information, which appears in either of the following two formats depending on the user's selection of a radio button:

- **Text View** displays processing status for each request in terms of numerical values (percentages) for each phase of the Ingest process, including details on a number of parameters for each listed request.
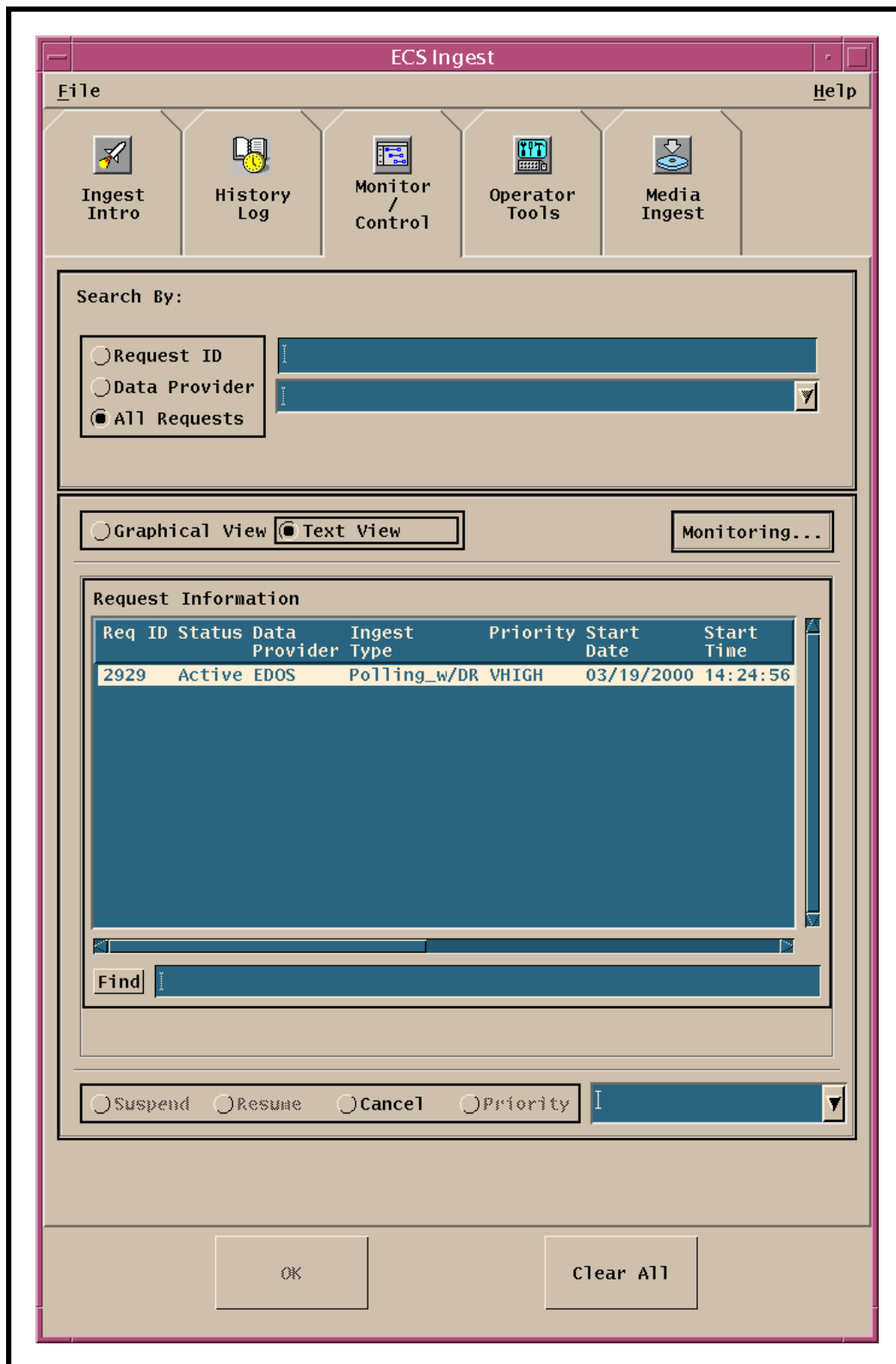
  – **Transfer (Xfer).**

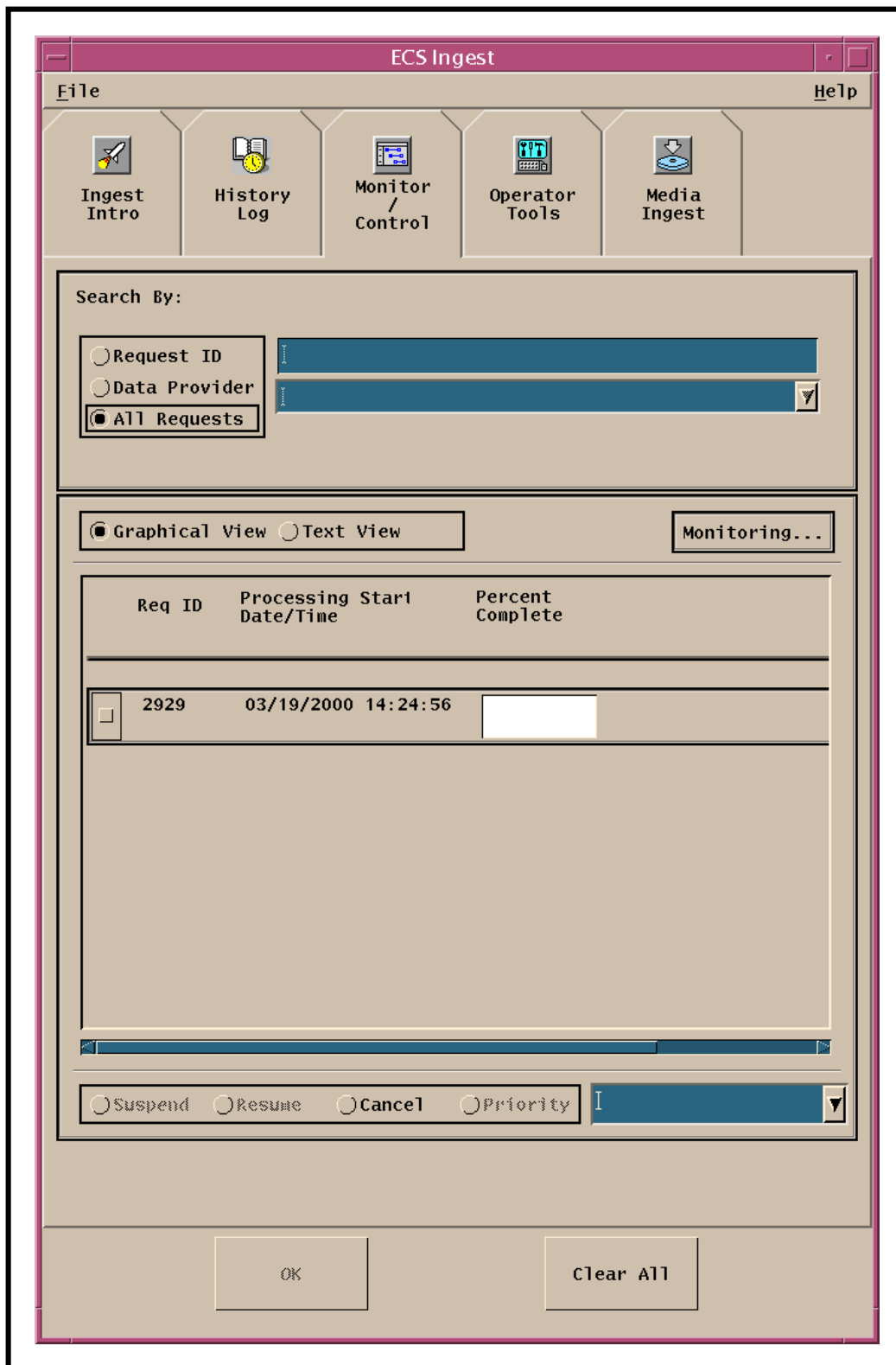**Figure 9. Ingest Monitor/Control Screen Text View**

Figure 10. Ingest Monitor/Control Screen Graphical View

> - **Preprocessing (Preproc).**
>
> - **Archiving (Arch).**

- **Graphical View** displays processing status for each request in terms of a bar chart for the phases of the Ingest process. It permits a quick overview of current status and what has been happening with active requests.

Below the display area there are radio buttons that would appear to be used for controlling requests (suspending, resuming, canceling or changing the priority). Starting with Release 5B the "cancel" and "resume" functions are available; however, the "suspend" and "priority" functions are not likely to be implemented at any time. At the bottom of the screen are two buttons labeled **OK** (which are used in implementing "cancel" and "resume" functions) and **Clear All** (which clears the entries).

To monitor ingest requests use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Monitoring Ingest Requests

1   Click on the Ingest GUI **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 11) is displayed.

2   To view the status of **all** current and recent ingest requests first click on the **All Requests** button then click on either the **Graphical View** button or the **Text View** button.

- All ongoing and recently completed ingest requests are displayed.

- **Graphical View** displays the following information, including a bar graph that indicates the percentage of the ingest process that has been completed:

> - **Request ID.**
>
> - **Processing Start Date/Time.**
>
> - **Percent Complete** (bar graph representing ingest completion in percent).
>
> - **External Data Provider.**

- **Text View** displays numerical values representing the percentage of the ingest process that has been completed in addition to much other information concerning the ingest request.

> - **Request ID.**
>
> - **Status** [of the request].
>
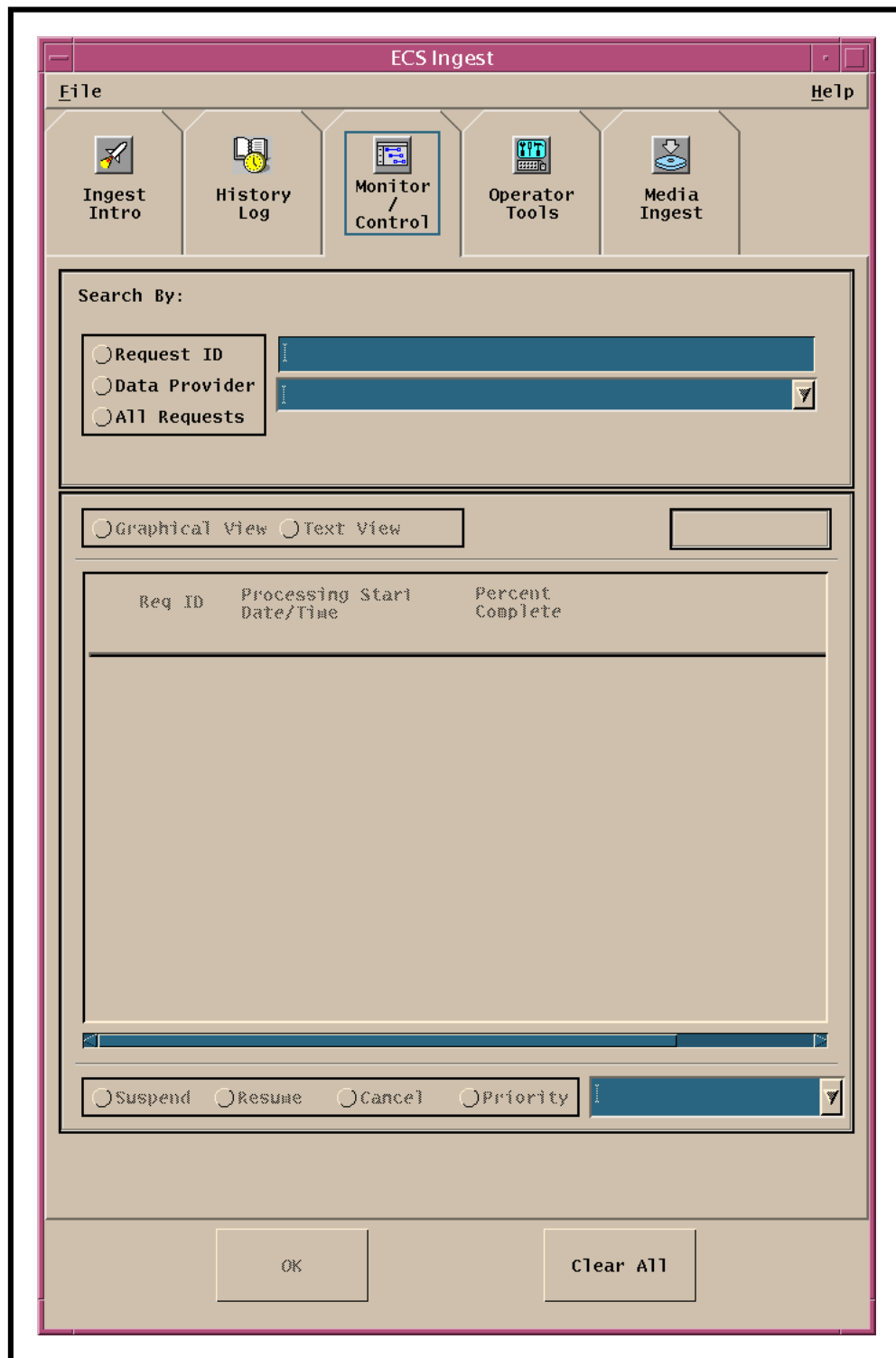> - **Data Provider.**
>
> - **Ingest Type.**

Figure 11. ECS Ingest GUI Monitor/Control Screen

- **Priority** [of the request].

- **Start Date.**

- **Start Time.**

- **End Date.**

- **End Time.**

- **Ttl # Gran** [total number of granules in the ingest request].

- **Data Vol (MB)** [volume of data in Megabytes].

- **Xfer Percent Complete** [percent of data transfer (into Ingest) that has been completed].

- **Preproc Percent Complete** [percent of preprocessing that has been completed].

- **Arch Percent Complete** [percent of data insertion into the data repository (archive) that has been completed].

3   To view the status of current and recent ingest requests for a particular **data provider** (e.g., **EDOS**) first click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), release the mouse button then click on either the **Graphical View** button or the **Text View** button.

- An alternative method of designating the data provider is to first type it in the **Data Provider** field then click on either the **Graphical View** button or the **Text View** button.

- Ongoing requests from the selected data provider are displayed.

4   To view the status of a particular **ingest request** first type the request ID in the **Request ID** field then click on either the **Graphical View** button or the **Text View** button.

- An alternative method of designating the request ID is to copy and paste (if possible) the request ID into the **Request ID** field before clicking on either the **Graphical View** button or the **Text View** button.

5   Observe ingest requests displayed in the **Request Information** list.

6   If it becomes necessary to resume processing of a suspended request or granule, perform the procedure for **Resuming Ingest Requests** (subsequent section of this lesson).

7   If it becomes necessary to cancel a request or granule, perform the procedure for **Canceling Ingest Requests** (subsequent section of this lesson).

8   Repeat Steps 2 through 7 as necessary to monitor ingest requests.

9   If it becomes necessary to exit from the **ECS Ingest** GUI select
File → Exit from the pull-down menu.

Resuming Ingest Requests

If the system has suspended an ingest request or one or more granules in a request and the problem that caused the suspension has been resolved, the processing of the request/granule(s) should be resumed. Use the procedure that follows to resume request/granule processing. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the relevant ingest request is being displayed on the **Monitor/Control** tab.

Resuming Ingest Requests

---

1   If an entire request is to be resumed, click on the row corresponding to the request to be resumed on the **Monitor/Control** tab.

- Either the selected ingest request is highlighted (Text View) or a checkmark is visible in the box to the left of the request information (Graphical View).

- Proceed to Step 5 if processing of an entire request is to be resumed; otherwise, go to Step 2.

2   If resuming the processing of one or more granules in a request, ensure that **Text View** has been selected on the **Monitor/Control** tab.

- Click on the **Text View** button if necessary.

3   If resuming the processing of one or more granules in a request, double-click on the row corresponding to the request containing the granule(s) to be resumed on the **Monitor/Control** tab.

- Information concerning the state of each granule in the request is displayed (one row per granule).

4   If resuming the processing of one or more granules in a request, click on the row corresponding to one of the granules to be resumed.

- The selected granule is highlighted.

5   Click on the **Resume** button near the bottom of the **Monitor/Control** tab.

6   Click on the **OK** button at the bottom of the GUI.

- A **Resume Request Confirmation Dialogue Box** (Figure 12) is displayed.

7   Click on the appropriate button from the following selections:

- **Yes** – to confirm resuming processing of the request or granule.

    - The **Resume Request Confirmation Dialogue Box** (Figure 12) is dismissed.

    - The selected ingest request or granule resumes processing.

Figure 12. Resume Request Confirmation Dialogue Box

- Status of the request or granule, as displayed in the **Status** column of the **Request Information** list (if using **Text View**), changes from "Suspended" to "Resuming" then to whatever state is appropriate for the continuation of request/granule processing (depending on its status when it was suspended).

- A **Request Control Status Information Dialogue Box** (Figure 13) is displayed.

- **No** – to cancel resuming processing of the request or granule.

    - The **Resume Request Confirmation Dialogue Box** (Figure 12) is dismissed.

    - The selected ingest request or granule remains in a "Suspended" state.

    - Proceed to Step 9.

8   Click on the **OK** button.

- The **Request Control Status Information Dialogue Box** (Figure 13) is dismissed.

9   Return to Step 4 to resume the processing of another granule in the request (if applicable).

10   Return to Step 1 to resume the processing of another request (if applicable).

11   Return to the procedure for **Monitoring/Controlling Ingest Requests**.
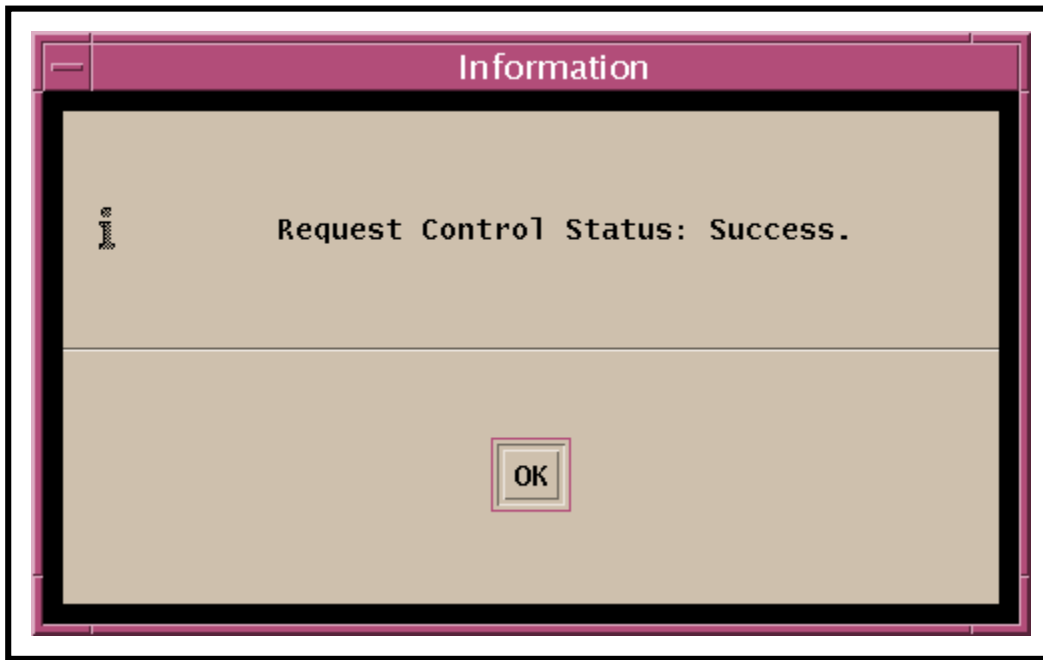
Figure 13. Request Control Status Information Dialogue Box

Canceling Ingest Requests

Sometimes it may be necessary to cancel the processing of an ingest request or one or more granules in a request. The procedure for canceling request or granule processing starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the relevant ingest request is being displayed on the **Monitor/Control** tab.

Canceling Ingest Requests

---

1   If an entire request is to be canceled, click on the row corresponding to the request to be canceled on the **Monitor/Control** tab.

- Either the selected ingest request is highlighted (Text View) or a checkmark is visible in the box to the left of the request information (Graphical View).

- Proceed to Step 5 if an entire request is to be canceled; otherwise, go to Step 2.

2   If canceling the processing of one or more granules in a request, ensure that **Text View** has been selected on the **Monitor/Control** tab.

- Click on the **Text View** button if necessary.

3   If canceling the processing of one or more granules in a request, double-click on the row corresponding to the request containing the granule(s) to be canceled on the **Monitor/Control** tab.

- Information concerning the state of each granule in the request is displayed (one row per granule).

4   If canceling the processing of one or more granules in a request, click on the row corresponding to one of the granules to be canceled.

- The selected granule is highlighted.

5   Click on the **Cancel** button near the bottom of the **Monitor/Control** tab.

6   Click on the **OK** button at the bottom of the GUI.

- A **Cancel Request Confirmation Dialogue Box** (Figure 14) is displayed.
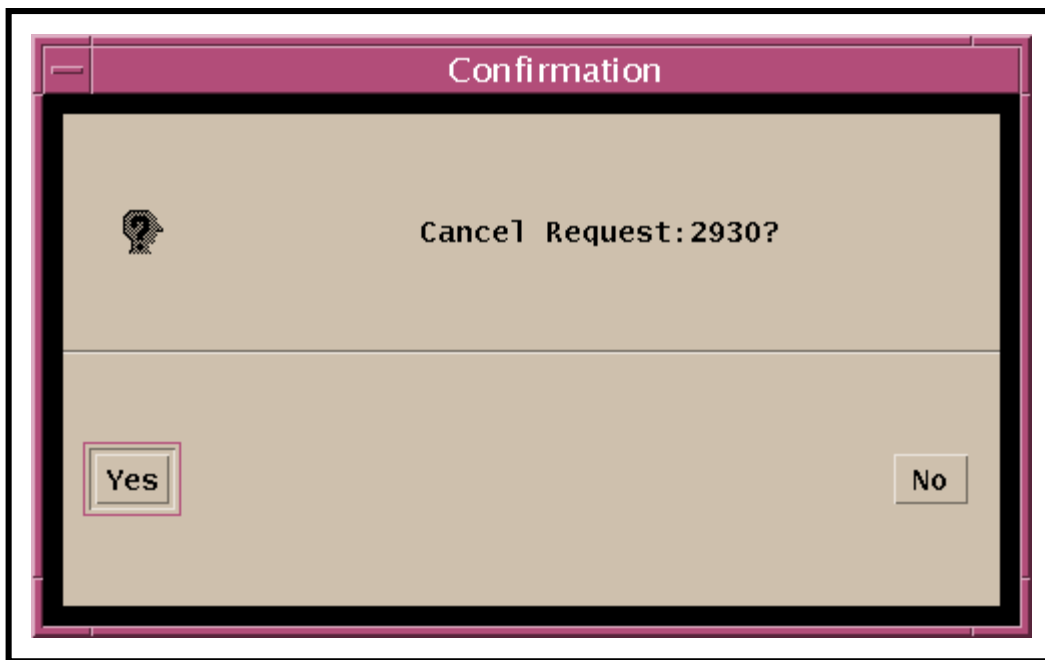
Figure 14. Cancel Request Confirmation Dialogue Box

7   Click on the appropriate button from the following selections:

- **Yes** – to confirm canceling the processing of the request or granule.

    – The **Cancel Request Confirmation Dialogue Box** (Figure 14) is dismissed.
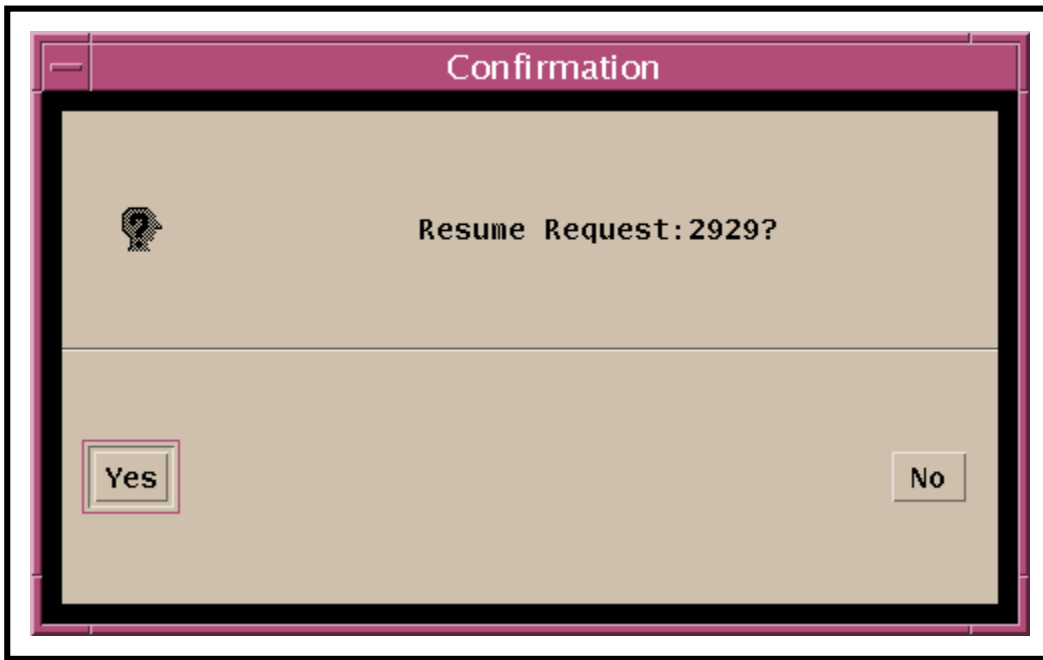
    – The selected ingest request or granule is canceled.

      − A **Request Control Status Information Dialogue Box** (Figure 13) is displayed.

- **No** – to prevent canceling the processing of the request or granule.

      − The **Cancel Request Confirmation Dialogue Box** (Figure 14) is dismissed.

      − The selected ingest request is not canceled.

      − Proceed to Step 9.

8   Click on the **OK** button.

- The **Request Control Status Information Dialogue Box** (Figure 13) is dismissed.

9   Return to Step 4 to cancel the processing of another granule in the request (if applicable).

10   Return to Step 1 to cancel the processing of another request (if applicable).

**11**   Return to the procedure for **Monitoring/Controlling Ingest Requests**.

Processing Cross-Mode or Cross-DAAC Ingests

As previously mentioned the Cross-Mode Ingest Interface allows the ingest of data from other DAACs or other modes at the same DAAC. The overall process is as follows:

- A subscription (for future data) or order (for data already in the archive) is entered in the mode from which the data are to be transferred.

- The subscription or order specifies (among other things)…

      − The data to be transferred.

      − Ftp push as the associated action/method of data distribution.

      − Destination for the ftp push.

      − The e-mail address for the Ingest E-Mail Parser (EcInEmailGWServer) in the receiving mode in the following format**:**

         EcInEmailGWServer_*MODE*@*host*

         (e.g., **EcInEmailGWServer_TS1@e0ins01u.ecs.nasa.gov** for data being sent to the TS1 mode at the EDC DAAC)

- To fulfill the subscription or order Data Distribution in the transferring mode pushes the data to the specified location.

- Data Distribution builds an e-mail notification that the order has been fulfilled and sends the distribution notice to Ingest via e-mail.

- The Ingest E-Mail Parser (EcInEmailGWServer) in the receiving mode (e.g., TS1 at the EDC DAAC) receives the e-mail distribution notice that the data files have been transferred via ftp.

- The Ingest E-Mail Parser parses the e-mail message and creates a delivery record file (PDR) using the information in the message.

- The Ingest E-Mail Parser copies the PDR into the appropriate polling directory.

- The applicable polling-with-delivery-record process in the receiving mode (e.g., TS1 at the EDC DAAC) checks the location for new delivery record files.

- The data are ingested in the receiving mode via the polling-with-delivery-record process.

Viewing the Ingest History Log

When an ingest transaction has been completed, several things happen:

- A notice is automatically sent to the data provider indicating the status of the ingested data.

- The data provider sends an acknowledgment of that notice.

- Receipt of the acknowledgment is logged by ECS.

- The request ID of that ingest request is removed from the list of active requests.

- The Ingest History Log receives statistics on the completed transaction.

The following four search criteria can be used individually or in combination to view entries in the Ingest History Log:

- Time Period (Start and Stop Date/Time).

- Data Provider ID (e.g., EDOS, NOAA, or a science team).

- Data Type (e.g., AST_L1B).

- Final Request Status (e.g., Successful, Failed, or Terminated).

The Ingest History Log provides reports in the following formats:

- **Detailed Report** gives detailed information about each completed ingest request.

- **Summary Report** is a summary of ingest processing statistics, including the average and maximum time taken to perform each step in the ingest process.

  – **Request-level** Summary Report provides ingest request processing statistics.

  – **Granule-level** Summary Report provides ingest granule processing statistics organized by data provider and Earth Science Data Type (ESDT):

To view the history log, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Viewing the Ingest History Log

1   Click on the Ingest GUI **History Log** tab.

- The **History Log** screen (Figure 15) is displayed.

- If History Log entries are to be displayed on the basis of a particular….

    - time period, perform Step 2. (If no time period is specified, log entries for the most recent 24-hour period will be displayed.)

    - data provider, perform Step 3.

    - data type, perform Step 4.

    - final request status, perform Step 5.

- Any of the preceding criteria (time period, data provider, data type, or final request status) may be used individually or in combination to view entries in the Ingest History Log.

2   To view Ingest History Log entries for a particular **time period**, click in the appropriate **Start Date/Time** and/or **Stop Date/Time month/day/year** and **hour/min/sec** fields and type the appropriate numerical values in *M(M)/D(D)/YYYY hh:mm:ss* format.

- The **Tab** key may be pressed to move from field to field.

- Use the 24-hour format to designate the hour (e.g., type **14** to designate 2 p.m.) in the **hour** fields.

- If using the **Tab** key to advance from one field to the next, it is possible to bypass the entry of **seconds** by pressing the **Tab** key.

3   To view log entries for a particular **data provider** (e.g., **EDOS**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the data provider is to type it in the **Data Provider** field.

- An alternative method of designating the data type is to type it in the **Data Type** field.

4   To view log entries of a particular **data type** (e.g., **AST_L1B**) click and hold on the option button to the right of the **Data Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.
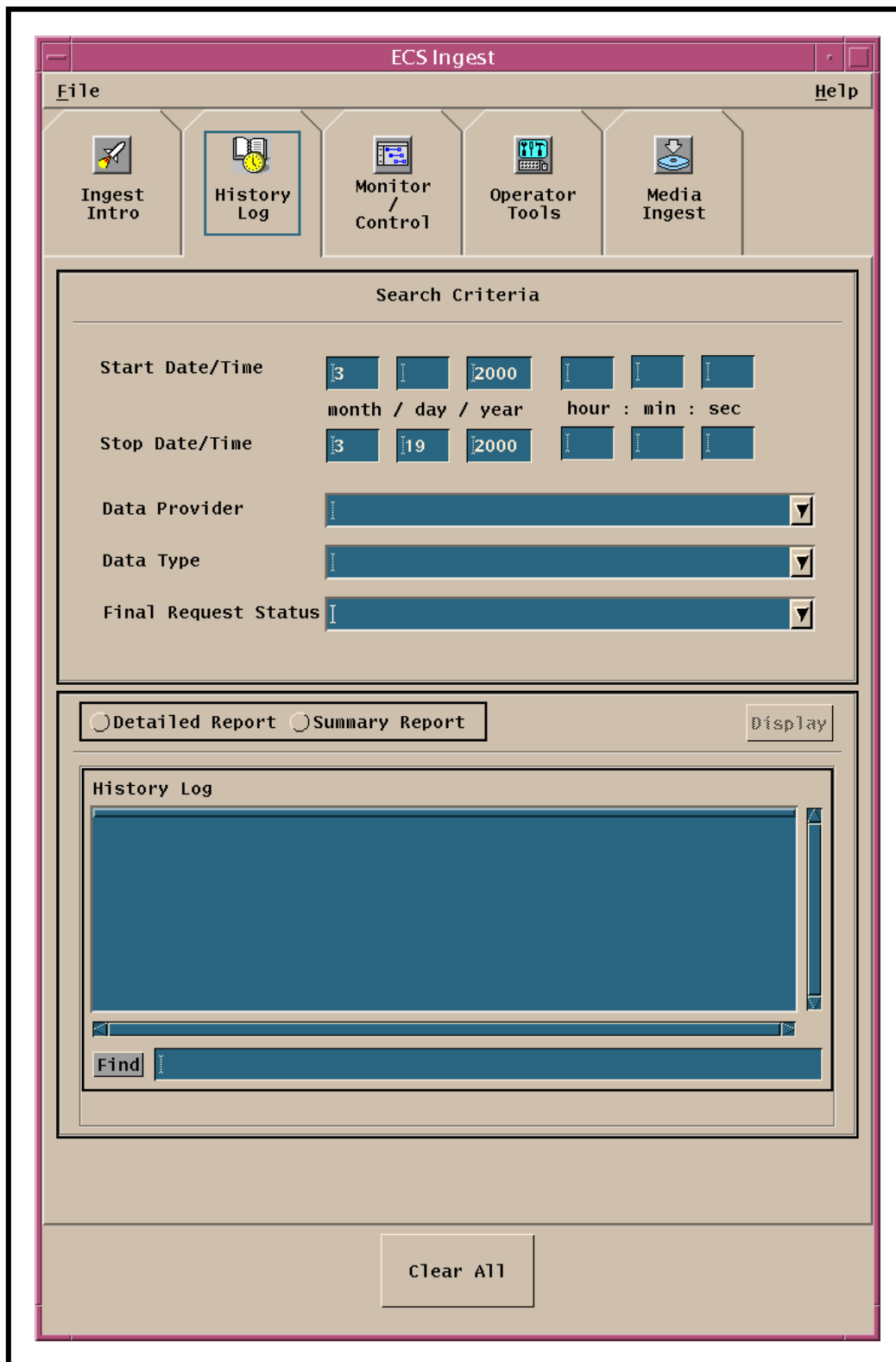
Figure 15. ECS Ingest GUI History Log Screen

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5   To view log entries with a particular final request status (e.g., **Terminated**) click and hold on the option button to the right of the **Final Request Status** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the final request status is to type it in the **Final Request Status** field.

6   Click on either the **Detailed Report** button or the **Summary Report** button.

- The **Detailed Report** (Figure 16) provides the following types of information on each completed ingest request.

    – **Request ID.**

    – **Data Provider.**

    – **Status.**

    – **Ingest Type.**

    – **Start Date.**

    – **Start Time.**

    – **End Date.**

    – **End Time.**

    – **Ttl # Gran** [total number of granules in the ingest request].

    – **#Success Gran** [total number of granules in the ingest request that were successfully ingested].

    – **Data Vol (MB)** [volume of data in Megabytes].

    – **File Count.**

    – **Time to Xfer (mins)** [transfer time in minutes].

    – **Time to Preproc (mins)** [preprocessing time in minutes].

    – **Time to Archive (mins).**

    – **Priority.**

    – **Restart Flag.**

- The **Summary Report** displays a summary that includes the average and maximum time needed to perform each step in the ingest process. (Refer to the next step for additional information.)
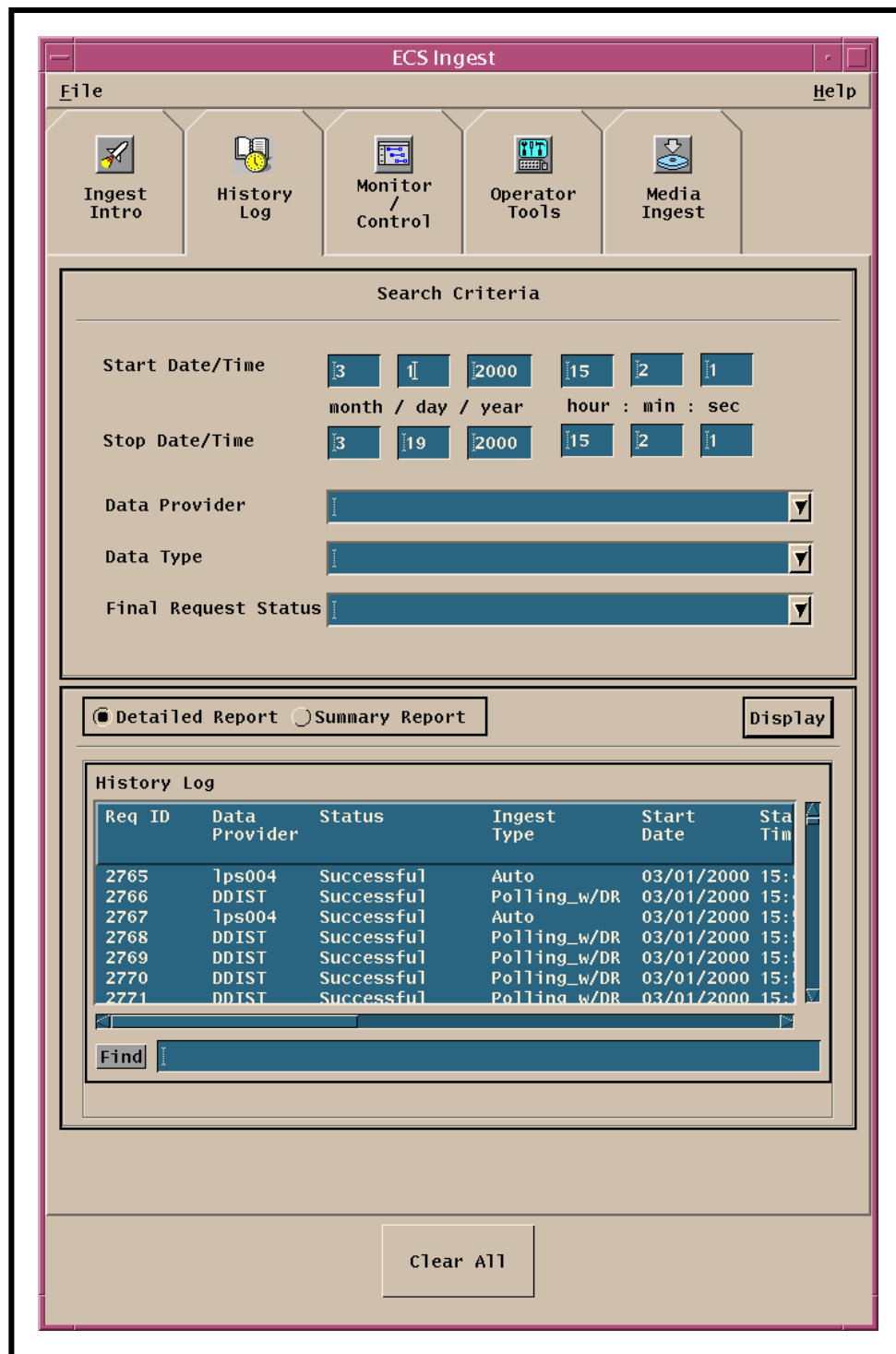
Figure 16. Detailed Report (ECS Ingest GUI History Log)

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7 If the **Summary Report** button was selected in the preceding step, click on either the **Request level** button or the **Granule level** button.

- The **Request level** Summary Report (Figure 17) provides Ingest request processing statistics.

  – **Data Provider.**

  – **Ttl Reqs** [total number of requests].

  – **Total Errs** [total number of errors per request].

  – **Gran Avg** [average number of granules per request].

  – **Gran Max** [maximum number of granules in a request].

  – **File Avg** [average number of files per request].

  – **File Max** [maximum number of files in a request].

  – **Size (MB) Avg** [average request size in Megabytes].

  – **Size (MB) Max** [maximum request size in Megabytes].

  – **Transfer Time (mins) Avg** [average request transfer time in minutes].

  – **Transfer Time (mins) Max** [maximum request transfer time in minutes].

  – **Preproc Time (mins) Avg** [average request preprocessing time in minutes].

  – **Preproc Time (mins) Max** [maximum request preprocessing time in minutes].

  – **Archive Time (mins) Avg** [average request archiving time in minutes].

  – **Archive Time (mins) Max** [maximum request archiving time in minutes].

- The **Granule level** Summary Report (Figure 18) includes the following types of information organized by data provider and Earth Science Data Type (ESDT):

  – **Data Provider.**

  – **Data Type.**

  – **Total Granules.**

  – **Total Errors.**

  – **File Avg.**

  – **File Max.**

  – **Size (MB) Avg.**

  – **Size (MB) Max.**

  – **Transfer Time (mins) Avg.**

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Figure 17. Request Level Summary Report (ECS Ingest GUI History Log)

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Figure 18. Granule Level Summary Report (ECS Ingest GUI History Log)

- **Transfer Time (mins) Max.**

- **Preproc Time (mins) Avg.**

- **Preproc Time (mins) Max.**

- **Archive Time (mins) Avg.**

- **Archive Time (mins) Max.**

8   Click on the **Display** button.

- Each ingest request that was completed, logged, and meets the specified criteria (time period, data provider, data type, and/or final status) is displayed.

9   Observe ingest request information displayed in the **History Log/Processing Statistics** field.

10   If a printed report is desired, select **Print** from the **File** pull-down menu (**File → Print**).

- If it is not possible to print a report from the GUI, the corresponding file is available in the **/usr/ecs/TS1/CUSTOM/temp/INS** directory and can be printed using conventional UNIX commands (e.g., lp or lpr).

11   To clear the display after viewing the history log data on the screen, click on either the **Go Back** button (if available) or the **Clear All** button.

- Entries in the **Search Criteria** fields and the **History Log/Processing Statistics** field are erased.

- The **Go Back** button is not always displayed on the GUI; it depends on the type of report being displayed on the screen.

Verifying the Archiving of Ingested Data

It is possible to determine whether Ingest has been successful by checking the appropriate directory on the File and Storage Management System (FSMS) host (e.g., g0drg01).

- The directories are identified by the type of data (e.g., aster, ceres, l7, modis) in them and correspond directly to tape volumes in the system.

- As long as one is checking for a limited range of granules the procedure is not likely to interfere with archive activities because it is just a matter of checking the relevant FSMS directory to determine whether the applicable files/granules have been transferred to tape volumes in the system.

- The procedure does not involve the use of any archive software.

- Before starting it is essential to know what data to look for. For example, End Date(s)/Time(s) and Data Volume(s) for ingest requests shown on the ECS Ingest

GUI can be used for comparison with dates/times and file sizes listed for the files in the relevant directory on the FSMS host.

To verify the archiving of ingested data use the procedure that follows. The procedure starts with the assumption that the Ingest/Distribution Technician has logged in to the ECS system.

Verifying the Archiving of Ingested Data

NOTE: Commands in Steps 1 through 5 are typed at a UNIX system prompt.

1   Start the log-in to the FSMS Server host by typing **/tools/bin/ssh** *hostname* (e.g., **e0drg01**, **g0drg01**, **l0drg01**, or **n0drg01**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** (“**y**” alone will not work).

- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '***<user@localhost>***'** appears; continue with Step 2.

- If you have not previously set up a secure shell passphrase; go to Step 3.

2   If a prompt to **Enter passphrase for RSA key '***<user@localhost>***'** appears, type your *Passphrase* then press the **Return/Enter** key.

- Go to Step 4.

3   At the *<user@remotehost>***’s password:** prompt type your *Password* then press the **Return/Enter** key.

4   Type **cd /dss_stk1/***MODE***/***datatype* then press the **Return/Enter** key.

- Change directory to the directory containing the archive data (e.g., /dss_stk1/OPS/modis/).

  – The specific path varies from site to site and with the operating mode and type of data being ingested.

- The *MODE* will most likely be one of the following operating modes:

  – OPS (for normal operation).

  – TS1 (for SSI&T).

  – TS2 (new version checkout).

5   Type **ls –la | grep** *'Month Day'* then press the **Return/Enter** key to list the contents of the directory.

- For example, to list the granules inserted on March 17, enter the following statement:

  ls –la | grep 'Mar 17'

- To list the granules inserted between 2:00 P.M and 3:00 P.M. on March 17, enter the following statement:

  ls –la | grep 'Mar 17' | grep 14:

- It is important to limit the listing (e.g., to a particular day). If there are tens of thousands of granules in the directory, just doing a listing of the directory would cause serious performance problems.

- A list of subdirectories and files in the current directory is displayed.

- The list should include the ingested data.

- If necessary, continue changing directory until the relevant granules/files have been located.

6   Compare the End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Cleaning Directories

Cleaning Polling Directories

The polling directories should be cleaned up (have old files deleted) after successful archiving, otherwise they would quickly run out of disk space. Automatic clean-up is scheduled for Release 5B. However, it may still be useful to know how to use the clean-up scripts.

Cleaning the polling directories starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

Cleaning the Polling Directories

NOTE: Commands in Steps 1 through 5 are typed at a UNIX system prompt.

1   Start the log-in to the Operations Workstation by typing **/tools/bin/ssh** *hostname* (e.g., **e0acs03**, **g0acs02**, **l0acs01**, or **n0acs03**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).

- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears; continue with Step 2.

- If you have not previously set up a secure shell passphrase; go to Step 3.

2   If a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears, type your *Passphrase* then press the **Return/Enter** key.

- Go to Step 4.

3   At the <*user@remotehost*>**'s password:** prompt type your *Password* then press the **Return/Enter** key.

4   Type **cd /usr/ecs/***MODE***/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the ingest polling directory clean-up script (e.g., EcInEDOSCleanupMain, EcInPollClean).

5   Type *Scriptname /path days* then press **Return/Enter**.

- *Scriptname* refers to the name of the appropriate ingest polling directory clean-up script (e.g., EcInEDOSCleanupMain, EcInPollClean).

- *path* refers to the directory path to the polling directory (e.g., /usr/ecs/*mode*/CUSTOM/icl/*INS_host*/data/pollEDOS).

- *days* refers to a number of days; any files in the EDOS polling directory (and subdirectories) older than the specified number of days will be deleted.

- If there are **no** files in the directory older than the specified number of days, the script quits after displaying the following message:

  ######## **There is no file in this directory older than *x* days.**
  ######## **Exit deletion.**

- If there are files in the directory older than the specified number of days, a message similar to the following message is displayed:

  ######## **The following are files older than *x* days in directory:. ########**
  ######## **pollEDOS**
  ########
  ######## **Please check before deleting them.**
  Shall we continue deletion? Type y or n only :

6　　If there are files in the directory older than the specified number of days, type either **y** or **n** (as appropriate) then press **Return/Enter**.

- Either lower-case or upper-case letters may be typed.

- If **n** was typed, the script quits after the following message is displayed:

  ######## **The answer is No.**
  ######## **Do not continue deletion.**

- If **y** was typed, the script continues after the following message is displayed:

  ######## **The answer is Yes.**
  ######## **Continue deletion.**

  − The script quits after the files that meet the specified age criteria have been deleted.

Performing Hard Media Ingest

Ingest from Tape Cartridges

ECS currently supports hard media ingest from either of the following types of media, although both types may not be supported at all sites:

- 8mm tape cartridges.

    – Each 8mm stacker contains two tape drives and can store up to 10 tape cartridges.

    – Each tape cartridge (8mm, or D3) is identified by means of a bar code label that shows the media number.

- D3 tape cartridges.

In the future ECS will support ingest from other media, such as optical disks.

Ingest of data (e.g., data from the science community) from physical media into ECS is performed by the DAAC Ingest/Distribution Technician using the **Media Ingest** tool on the Ingest GUI.

- A Product Delivery Record (PDR) file is required for hard media ingest; it may be handled in one of two ways.

    – Embedded in (recorded on) the hard medium.

    – Made available electronically (e.g., in a specified network directory).

        · Data provider transfers the PDR file (using ftp) to the network directory location before delivery of the hard medium.

- The Ingest/Distribution Technician uses the **Media Ingest** screen of the ECS Ingest GUI (see Figure 25), mounts the media on a specific device, and enters necessary parameters.

- The Ingest/Distribution Technician monitors and responds to error messages displayed on the Ingest GUI and reviews data errors with appropriate parties (e.g., the DAAC Archive Manager, Science Data Specialist, and/or the data provider).

Labeling Tape Cartridges with Bar Codes

Each tape containing data to be ingested must have a bar-code label. The labels are either purchased or printed. (The procedure for **Printing Labels** is included in the **Data Distribution** lesson.) The Ingest/Distribution Technician affixes a bar-code label to the label area on the edge of each tape.

Setting Up the 8mm Tape Stackers

Setting up the 8mm tape stackers is in part a manual process. The procedure that follows involves the use of the **Storage Management Control** GUI to perform the following activities:

- Define tape groups (by stacker sleeve) if necessary.

- Record the bar code (Tape ID) of each tape loaded in a particular location in a sleeve.

- Identify the stacker into which each sleeve is loaded.

The procedure starts with the assumption that all applicable servers and the **Storage Management Control** GUI are currently running and the **Storage Config.** screen (Figure 8) is being displayed.

Setting Up the 8mm Tape Stackers

---

1   Click on the **Resource Schedule** tab on the **Storage Management Control** GUI.

- The **Storage Management Control** GUI **Resource Schedule** tab (Figure 19) is displayed.

2   If a new tape group is needed, perform Steps 3 through 6; otherwise, go to Step 7.

3   Click on the **Manage Tapes** button on the **Resource Schedule** tab.

- The **Manage Tape Groups** window (Figure 20) is displayed.

4   Click on the **New Tape Group** button in the **Manage Tape Groups** window.

- The **New Tape Group** window (Figure 21) is displayed.

- A tape group is typically defined in terms of a stacker sleeve (tape cartridge holder), which holds ten tapes.

    − It may be useful to label the tape stacker sleeve with the name for the tape group.

5   Type the following information in the **New Tape Group** window.

- Name for the new tape group.

- Number of slots (i.e., **10**).

    − The number of slots entered must agree with the number of slots in the stacker.

- Type of Media (i.e., **8MM**).

6   Click on the **OK** button.

- The **Manage Tape Groups** window (Figure 20) is displayed.
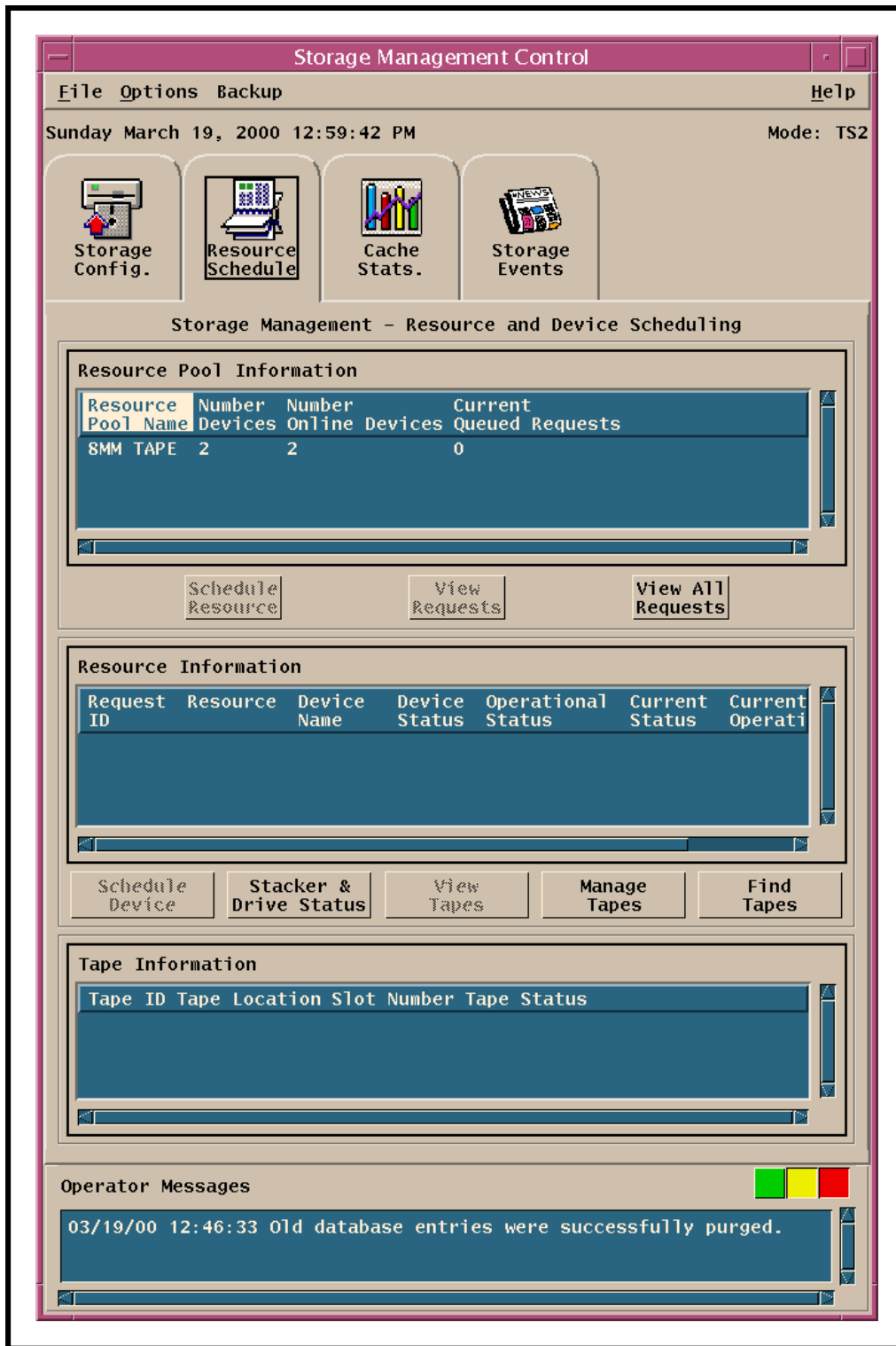
Figure 19. Resource Schedule Tab (Storage Management Control GUI)

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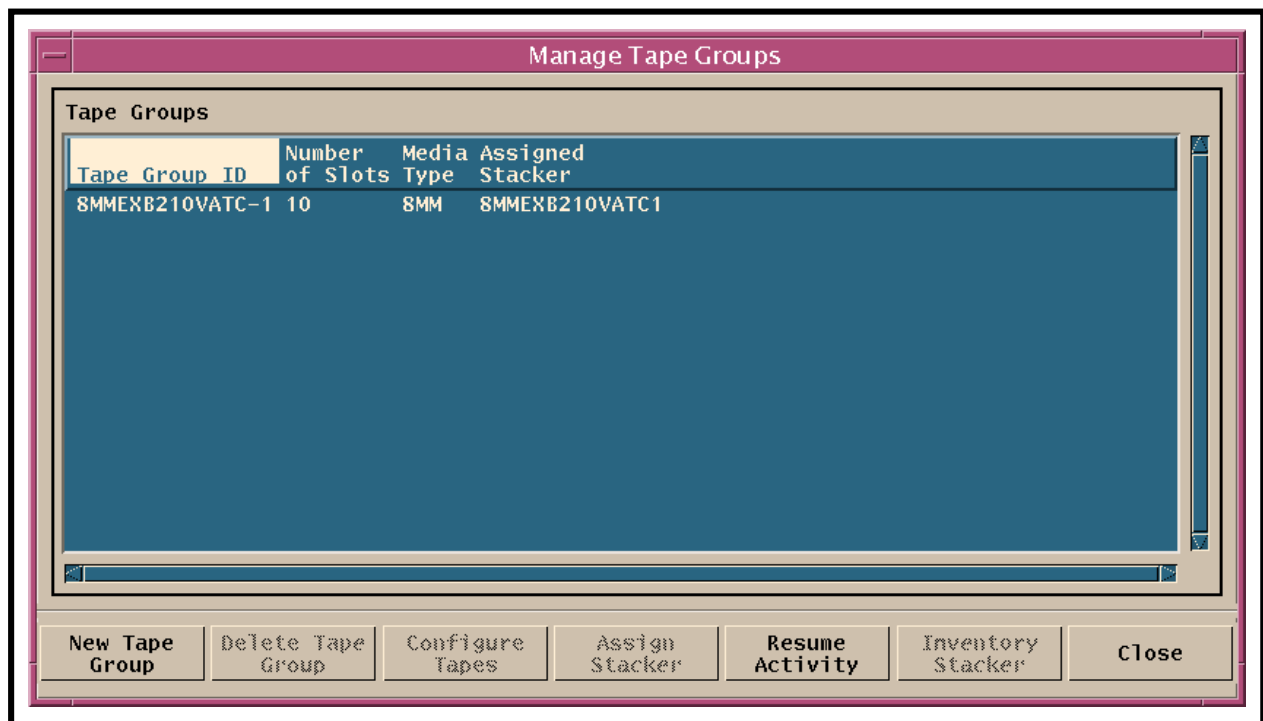
Figure 20. Manage Tape Groups Window (Storage Management Control GUI)
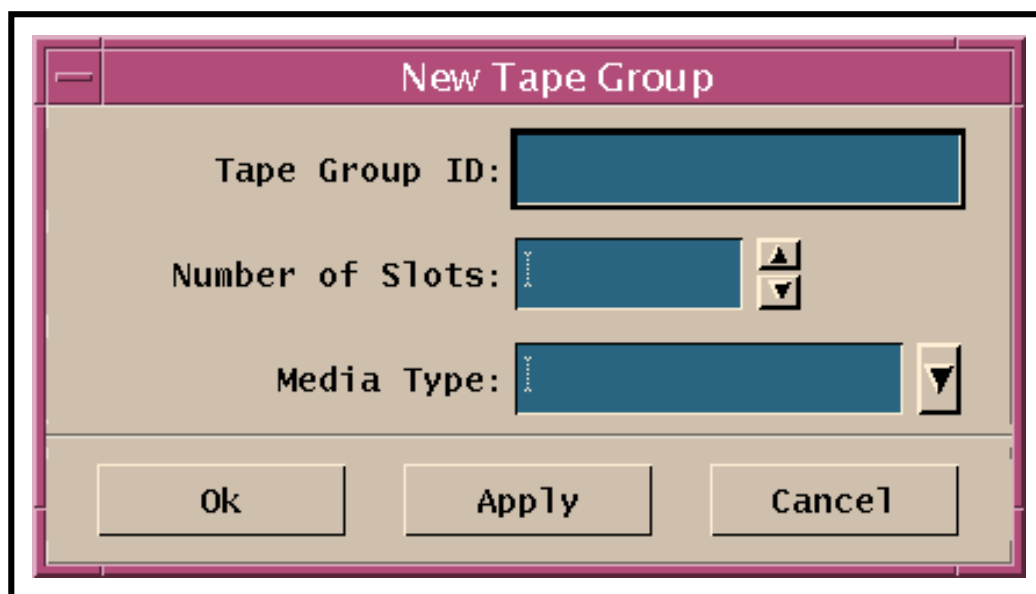
Figure 21. New Tape Group Window (Storage Management Control GUI)

7   Load tapes in the sleeve and stacker by performing the procedure for **Unloading and Loading Tapes** (subsequent section of this lesson).

- Verify that the write-protect switch (e.g., red tab) on each tape is set at the appropriate position for the desired operation. (Either position is acceptable for Ingest.)

    – **REC** (writable).

    – **SAVE** (read only).

- Slot 1 is at the top of the sleeve; Slot 10 is at the bottom of the sleeve.

- There is one orientation feature at the top of the sleeve; there are two orientation features at the bottom of the sleeve.

8   Highlight the tape group to be modified by clicking on the name of the tape group in the **Manage Tape Groups** window (Figure 20).

- The tape group is highlighted and the **Delete Tape Group**, **Configure Tapes**, and **Assign Stacker** buttons are activated.

- The tape group must be modified if different tapes (with different bar codes) are to be loaded into the stacker sleeve.

9   Click on the **Configure Tapes** button in the **Manage Tape Groups** window.

- The **Configure Tape Group** window (Figure 22) is displayed.

10   Select (highlight) a line (in the **Configure Tape Group** window) corresponding to a tape in the stacker sleeve for which data need to be entered or modified.

11   Enter the appropriate data for each tape in the sleeve in the **Configure Tape Group** window:

- Element Number.

    – Use the default value.

- Capacity (GB)

    – Enter the number (e.g., **4**) corresponding to the capacity of the tape in gigabytes.

- Slot Use.

    – Select **Read-Only Ingest** for Ingest.

    – Select **Read/Write Distribution** for Data Distribution.

- Tape ID.

    – Type the bar code of the tape in the corresponding slot.

    – Leading zeros on the bar code do not have to be entered.
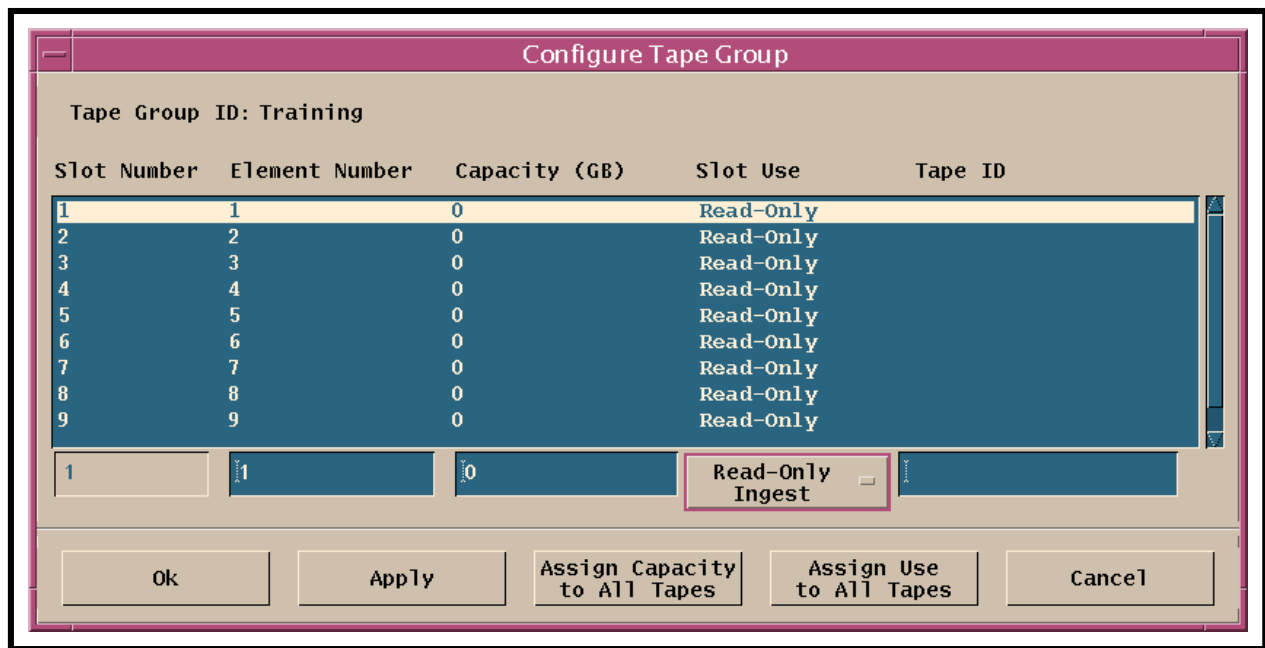
Figure 22. Configure Tape Group Window (Storage Management Control GUI)

- The **Assign Use to All Tapes** and the **Assign Capacity to All Tapes** buttons may be used to expedite entering data in the **Configure Tape Group** window.

12   Click on the **OK** button.

- The **Manage Tape Groups** window (Figure 20) is displayed.

13   Click on the **Assign Stacker** button.

- The **Assign Tape Group to Stacker** window (Figure 23) is displayed.

14   Click on the stacker into which the tape group (sleeve) was loaded.

15   Click on the **Assign** button.

- The **Assign Tape Group to Stacker** window is dismissed.

16   Repeat Steps 2 through 15 as necessary for each additional stacker to be set up.
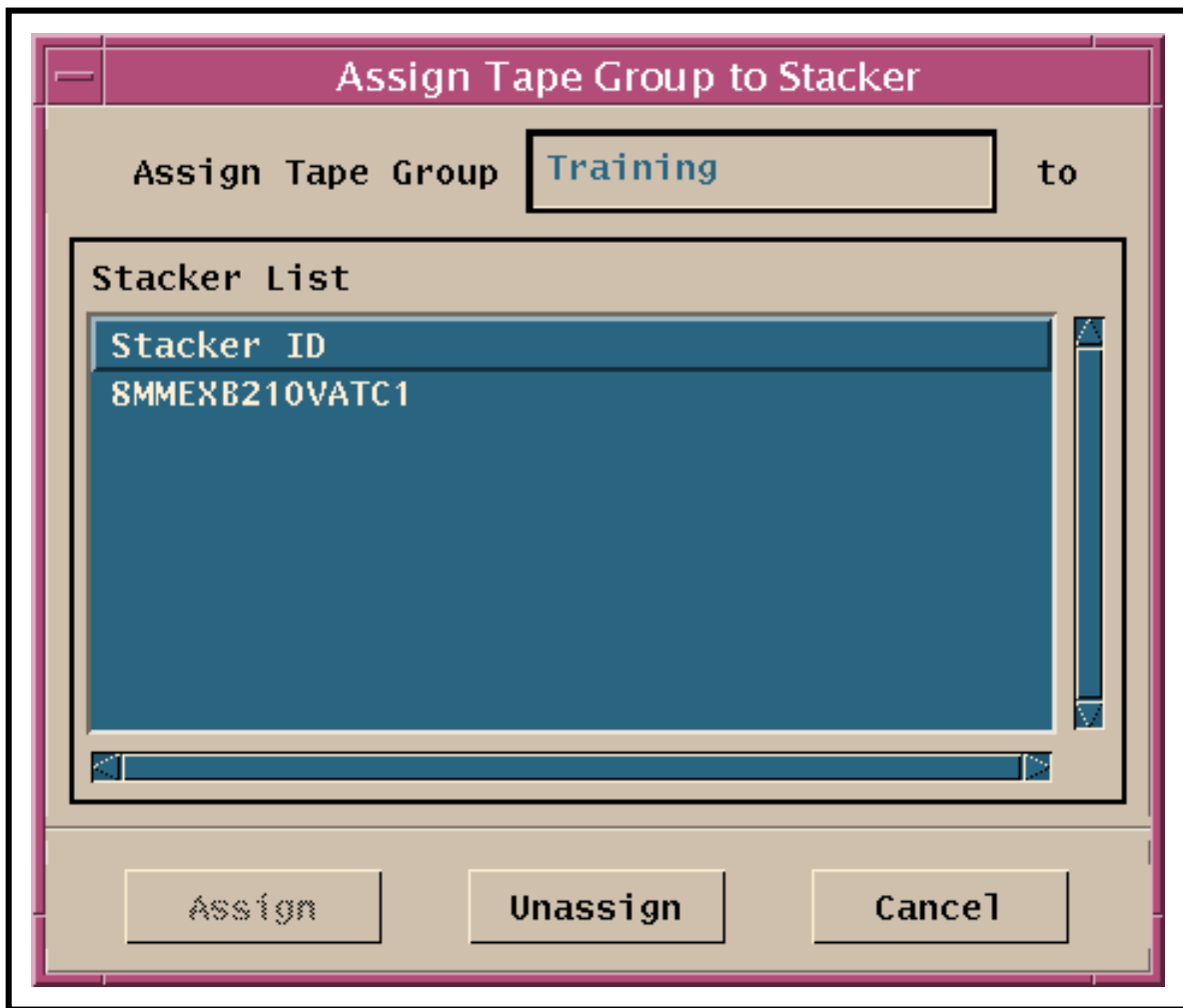
***Figure 23. Assign Tape Group to Stacker Window (Storage Management Control
GUI)***

Unloading/Loading 8mm Tape Cartridges for Ingest Purposes

The procedure that follows involves the following activities:

- Verifying that there is **no** active 8mm ingest.

- Unloading an 8mm tape stacker.

- Loading an 8mm tape stacker.

The procedure starts with the assumption that all applicable servers, the **ECS Ingest** GUI, and
the **Storage Management Control** GUI are currently running and the **Storage Config.** screen
(Figure 8) is being displayed.

1   Observe the **ECS Ingest** GUI to verify that there is **no** active 8mm ingest.

- During data transfer from tape, the Ingest GUI prevents any other function from being selected until the transfer has been completed.

- Wait until an active 8mm ingest (if any) has completed before proceeding.

2   If the stacker is dedicated to Ingest, continue with Step 3; otherwise, perform **Unloading/Loading 8mm Tape Cartridges** as described in the **Data Distribution** lesson.

3   Click on the **Resource Schedule** tab on the **Storage Management Control** GUI.

- The **Storage Management Control** GUI **Resource Schedule** tab (Figure 19) is displayed.

4   Click on the **Stacker & Drive Status** button on the **Resource Schedule** tab.

- The **Schedule Stacker/Drive** window (Figure 24) is displayed.

5   Observe the information displayed in the **Stacker Information** window near the top of the **Schedule Stacker/Drive** window (Figure 24).

- If line in the **Stacker Information** window corresponding to the stacker to be used for ingesting data indicates an **Offline** status, go to Step 12; otherwise, continue with Step 6.

6   Select (highlight) the line in the **Stacker Information** window corresponding to the stacker to be used for ingesting data.

7   Observe the information displayed in the **Drive Information** window near the bottom of the **Schedule Stacker/Drive** window (Figure 24).

- If both drives indicate an **Offline** status, go to Step 11; otherwise, continue with Step 8.

8   If either drive indicates a status other than **Offline**, select (highlight) the line in the **Drive Information** window corresponding to a drive with an **Online** or **Loaded** status.

9   Click and hold the **Status** option button below the **Drive Information** window to display a menu of statuses, move the mouse cursor to **Offline** (highlighting it), then release the mouse button.

10   Repeat Steps 8 and 9 to take the other drive off line if necessary.

11   Click and hold the **Status** option button below the **Stacker Information** window to display a menu of statuses, move the mouse cursor to **Offline** (highlighting it), then release the mouse button.
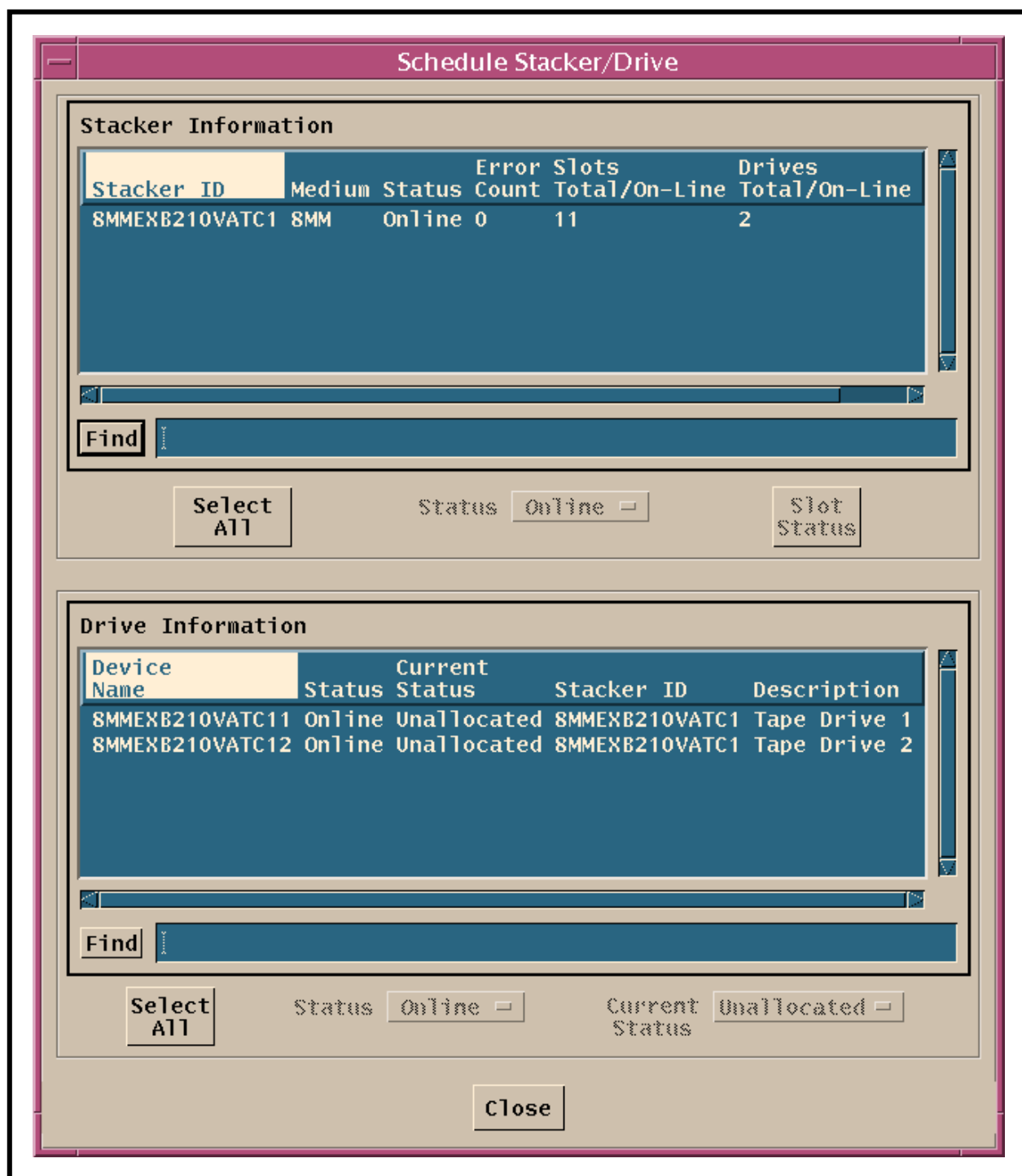
Figure 24. Schedule Stacker/Drive Window (Storage Management Control GUI)

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12   Turn the key in the key-lock of the EXB-210 8mm tape stacker to stop tape stacker unit operation.

13   Wait for the tape stacker cartridge handling mechanism to finish the current operation and move to the "park" position.

- When the handling mechanism reaches the "park" position, the stacker unit's door interlock mechanism releases and a **Status: Unlocked** message is displayed on the unit.

14   Open the front door of the tape stacker.

15   Remove the cartridge holder (sleeve) by pulling out, first from the top, then the bottom.

16   Remove the tapes by gently pulling each one straight out from its slot.

- 8mm tapes can be removed and replaced individually without having to unload and load the entire stacker.

- When the tapes have been removed, unloading has been completed; loading can begin.

17   Verify all of the following characteristics of all tapes to be loaded into the stacker:

- The write-protect switch (e.g., red tab) on each replacement tape is set correctly for the desired operation. (Either position is acceptable for Ingest.)

  – **REC** (writable).

  – **SAVE** (read only).

- There is a bar-code label properly attached to each tape.

- The bar codes on all tapes have been accurately recorded in the **Storage Management Control** GUI **Configure Tape Group** window as described in the procedure for **Setting Up the 8mm Tape Stackers** (previous section of this lesson).

18   Hold the tape with the write-protect switch toward the right.

19   Insert the tape by pushing gently straight into a slot in the cartridge holder (sleeve).

20   Repeat Steps 17 through 19 for each tape cartridge to be loaded into the tape stacker.

21   Replace the cartridge holder by inserting the two orientation features on the bottom of the holder (sleeve) into the bottom of the plate then pressing on the top and snapping the holder (sleeve) in place.

22   Close the door to start the process of resuming tape stacker operation.

23   Lock the door by turning the key in the key-lock.

24   Verify that the line in the **Stacker Information** window corresponding to the stacker to be used for ingesting data has been selected (is highlighted).

25 Click and hold the **Status** option button below the **Stacker Information** window to display the menu of statuses, move the mouse cursor to **Online** (highlighting it), then release the mouse button.

26 Select (highlight) a line in the **Drive Information** window corresponding to one of the drives in the stacker.

27 Click and hold the **Status** option button below the **Drive Information** window to display a menu of statuses, move the mouse cursor to **Online** (highlighting it), then release the mouse button.

28 Repeat Steps 26 and 27 to put the other drive on line.

Performing Media Ingest from 8mm Tape

To perform hard media ingest from 8mm tape use the procedure that follows. (Use the procedure that follows this one for D3 tape ingest.) The procedure starts with the following assumptions:

- The tape containing the data to be ingested has been loaded into a stacker as described in the procedure for **Unloading and Loading Tapes for Ingest Purposes** (previous section of this lesson).

- The stacker has been properly set up as described in the procedure for **Setting Up the 8mm Tape Stackers** (previous section of this lesson).

- The PDR file is available, either placed on the network by the data provider or embedded in the media.

- All applicable servers and the **ECS Ingest** GUI are currently running, and the **Ingest Intro** screen (Figure 7) is being displayed.

Performing Media Ingest from 8mm Tape

1 Click on the Ingest GUI **Media Ingest** tab.

- The **Media Ingest** screen (Figure 25) is displayed.

2 To enter the type of medium (i.e., **8mm Tape**) click and hold on the option button to the right of the **Media Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected type of medium is displayed in the **Media Type** field (as shown in Figure 26).

3 Type the stacker ID in the **Stacker ID** field.

4 Type the stacker slot ID in the **Stacker Slot ID** field.

Figure 25. Media Ingest Screen

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Figure 26. Media Ingest Screen (8mm Tape)

CAUTION

The stacker slot identification that is entered must correspond exactly to the stacker slot into which the tape is loaded, or the system may ingest the wrong data.

5   To enter the data provider (e.g., **SDPF**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected data provider is displayed in the **Data Provider** field.

6   Type the media volume ID in the **Media Volume Id (Barcode)** field.

7   Click on the appropriate radio button in the **Data Delivery Record File Location** box.

- Click on the **On Network** button if the PDR file is located on the network.

- Click on the **Embedded in Media** button if the PDR file is recorded on the tape.

8   Type the data delivery record file name (e.g., **sdpf31a.PDR**) in the **Data Delivery Record File Name** field.

9   Click on the **OK** button at the bottom of the GUI.

- Data transfer is initiated.

NOTE: During data transfer from tape, the Ingest GUI prevents any other function from being selected until the transfer has been completed.

- A **Media Ingest Complete** pop-up window is displayed when data transfer from the tape has been completed.

10   Click on the **OK** button on the **Media Ingest Complete** pop-up window associated with the **ECS Ingest** GUI.

- The **Media Ingest Complete** pop-up window is dismissed.

11   Monitor request processing by performing the procedure for **Monitoring Ingest Requests** (preceding section of this lesson).

Performing Media Ingest from D3 Tape

In addition to hard media ingest from 8mm tape cartridges, it is possible for the DAAC Ingest/Distribution Technician to have data ingested from a D3 tape utilizing the Ingest GUI and the Storage Tek Controller/Transport Redwood SD-3 for D3 tape cartridge processing.

To perform hard media ingest from a D3 tape use the procedure that follows. The procedure starts with the following assumptions:

- The PDR file is available, either placed on the network by the data provider or embedded in the media.

- All applicable servers and the **ECS Ingest** GUI are currently running, and the **Ingest Intro** screen (Figure 7) is being displayed.

Performing Media Ingest from D3 Tape

1   Verify that the display above the D3 tape unit indicates "**∗**".

2   Verify that there is **no** tape cartridge inserted in the D3 tape unit.

- Remove the tape cartridge in the D3 tape unit (if applicable).

3   Verify that the **Ready** light is illuminated in the second row of the panel near the window of the D3 tape unit where the tape is inserted.

- If the **Ready** light is not illuminated, push the **Ready** button.

4   Click on the Ingest GUI **Media Ingest** tab.

- The **Media Ingest** screen (Figure 25) is displayed.

5   To enter the type of medium (i.e., **D3 Tape**) click and hold on the option button to the right of the **Media Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected type of medium is displayed in the **Media Type** field (as shown in Figure 27).

6   To enter the data provider (e.g., **SCF**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected data provider is displayed in the **Data Provider** field.

7   Verify that there is a **Media Volume ID** sticker on the tape cartridge containing the data to be ingested.

8   Type the media volume ID in the **Media Volume Id (Barcode)** field.

9   Click on the appropriate radio button in the **Data Delivery Record File Location** box.

- Click on the **On Network** button if the PDR file is located on the network.

- Click on the **Embedded in Media** button if the PDR file is recorded on the tape.

10   Type the data delivery record file name (e.g., **scf11a.PDR**) in the **Data Delivery Record File Name** field.

Figure 27. Media Ingest Screen (D3 Tape)

11   Click (**once only**) on the **OK** button at the bottom of the GUI.

- The GUI **OK** button is sensitive to being clicked more than once. It is important to click it dead center once only or D3 ingest is likely to fail.

12   Insert the tape cartridge in the D3 tape drive.

- The tape cartridge must be inserted within one minute of clicking on the **OK** button on the Ingest GUI.

- The message "Loading" should be displayed on the D3 tape drive unit panel.

- Then the message "Ready" should be displayed on the D3 tape drive unit panel and the "ready" light should blink on and off for a while.

- Avoid clicking the mouse on the Ingest GUI while the D3 tape unit is reading the tape.

- Once the extraction command has been executed, the system reads the D3 tape from the header label, then accesses the data needed for Ingest processing.

NOTE: During data transfer from tape, the Ingest GUI prevents any other function from being selected until the transfer has been completed.

13   When the data transfer has been completed, wait for the message "Ingest Request Completed."

- The messages "Rewinding" then "Unloading" should be displayed on the D3 tape drive unit panel as the D3 tape drive unit rewinds and unloads after the data transfer.

- Upon completion of the process the D3 tape automatically rewinds and ejects itself from the tape drive.

14   Remove the tape cartridge from the D3 tape drive.

15   Click on the **OK** button on the **Media Ingest Complete** pop-up window associated with the **ECS Ingest** GUI.

- The **Media Ingest Complete** pop-up window is dismissed.

16   Monitor request processing by performing the procedure for **Monitoring Ingest Requests** (preceding section of this lesson).

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Scanning Documents

Scanning Documents

The procedure for scanning documents describes the steps involved in operating the HP ScanJet scanner and creating a graphics (TIFF format) file. The software package that supports scanning is TexBridge Pro 96. The software allows scanning of documents that include both text and tables.

The procedure for scanning documents starts with the assumption that the Ingest/Distribution Technician has logged in to Windows 95 on the applicable personal computer (PC).

Scanning Documents

---

1   To access the TexBridge scanning software use the mouse to select **Start → Programs → TexBridge Pro 96 → TexBridge Pro 96** from the Windows 95 menu bar.

2   When the **TexBridge Pro 96** window appears, ensure that the following five (5) options are listed on the toolbar as follows:

Page Quality / Page Orientation / Original Document Layout / Document Recomposition / Brightness

Auto   Auto   Auto   Recompose All   Auto

• In other words, the software parameters should be set up as follows:

  – Page Quality: Auto.

  – Page Orientation: Auto.

  – Original Document Layout: Auto.

  – Document Recomposition: Recompose All.

  – Brightness: Auto.

3   Click on **Read from Scanner** (the 4th icon from the left of the window).

• An alternative is to select **File → Read Image from Scanner** from the pull-down menu.

4   Click on **Save Image Defer OCR** (the 8th icon from the left of the window).

5   Set the green lever on the on the HP ScanJet at the vertical position.

6   Set the stack of documents with the side to be scanned facing up on the feed tray of the HP ScanJet.

7   Rotate the green lever on the on the HP ScanJet clockwise.

8   Click on the **Go** icon to start the scanning process.

  • An alternative is to select **File → Start/Continue Processing** from the pull-down menu.

  • An **Add More Pages** window is displayed when the document has been scanned.

  • The **Add More Pages** window lists the following options.

    Add more pages to the scanner and click continue
    Or turn pages over in the scanner and click Flip and continue
    Or, click End if you are done.

9   Click on the appropriate button from the following selections:

  • **Continue** – if additional pages need to be scanned.

    – Return to Step 5.

  • **Flip and continue** – if the pages in the scanner need to be flipped over to scan the backs of the sheets.

    – Turn the stack of pages over and return to Step 5

  • **End** - if scanning has been completed.

    – A **Save Page Image As** window is displayed.

    – Go to Step 10.

10   Type a file name in the **File name:** field of the **Save Page Image As** window.

11   Verify that **TIFF CCITT-3 (*.TIF)** is displayed in the **Save as type:** field.

12   Click on the **OK** button to save the file.

13   To exit from the TexBridge scanning software select **File → Exit** from the pull-down menu.

Gaining Access to Scanned Documents

After a document has been scanned, it should be checked to ensure that it has been properly scanned and saved. The procedure for gaining access to scanned documents starts with the assumption that the Ingest/Distribution Technician has logged in to Windows 95 on the applicable personal computer (PC).

1   To access the TexBridge scanning software use the mouse to select
        Start → **Programs** → **TexBridge Pro 96** → **TexBridge Pro 96** from the Windows 95
        menu bar.

2   Click on the **Read from File** icon.

- An alternative is to select **File** → **Read Image from File** from the pull-down menu.

3   Click on the **Preview Image** icon.

- An **Open** window is displayed with a list of files.

4   Double-click on the name of the desired file.

- An alternative is to single-click on the name of the desired file then click on the **Open**
  button.

- The image of the scanned document is displayed.

5   Observe the image of the scanned document.

6   Adjust the image using the **Zoom In** icon if desired.

- An alternative is to select **View** → **Zoom In** from the pull-down menu.

7   To exit from the TexBridge scanning software select **File** → **Exit** from the pull-down
        menu.

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Modifying Ingest Tunable Parameters and Performing File Transfers

Operator Tools Tab

There are three GUI screens on the **ECS Ingest** GUI **Operator Tools** tab (Figure 28). Two of the tabs are used for viewing and/or setting ingest parameters or thresholds:

- Data provider data and thresholds.
    - File Transfer Protocol (ftp) user name.
    - File Transfer Protocol (ftp) password.
    - Electronic mail (e-mail) address.
    - HTML password.
    - Cell Directory Service (CDS) entry name.
    - Server destination Universal Unique Identifier (UUID).
    - Maximum data volume that may be ingested concurrently.
    - Maximum number of ingest requests that may be processed concurrently.
    - Priority for ingest processing.
    - "Notify" parameters (essential data for providing data provider notification).
        - Type.
        - ftp node.
        - ftp directory.
        - ftp username.
        - ftp password.
- System thresholds.
    - Maximum data volume to be ingested concurrently.
    - Maximum number of ingest requests that may be processed concurrently.
    - Communication retry count.
    - Communication retry interval.
    - Monitor time.
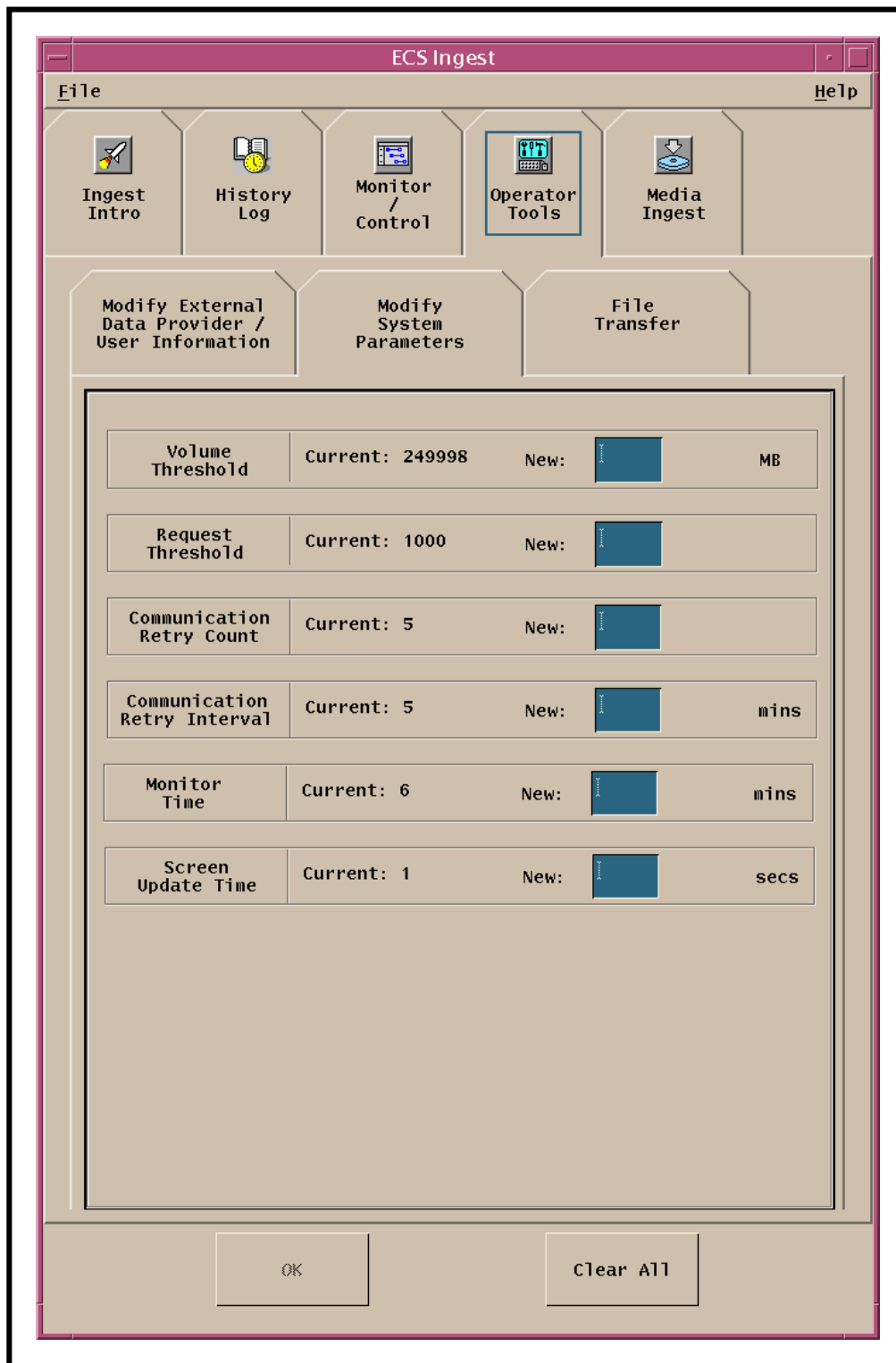
Figure 28. ECS Ingest GUI Operator Tools Tab

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– Screen update time.

The third GUI screen on the **Operator Tools** tab allows the Ingest/Distribution Technician to transfer requested files to optional remote sites.

External Data Provider Data and Thresholds

Figure 29 shows the screen for modifying data provider thresholds. The screen shown in Figure 29 is used for modifying external data provider information. It has the following uses:

- Accommodate changes in data provider information (e.g., e-mail address) changes.

- Assist the Ingest/Distribution Technician in managing the ingest processing stream.

For example, the external data provider volume threshold and request threshold define the size and number of concurrent requests that are allowed from a data provider before the system notifies the Ingest/Distribution Technician of the fact that the data provider in question is taking up a significant portion of the ingest processing capacity. Although these thresholds will normally be left high so that requests are processed without restriction, there may be a time when it is desirable to lower those thresholds (e.g., to accommodate another data provider's requests). The Ingest/Distribution Technician might at the same time reduce the priority with which the data provider's requests are to be processed. For example, the Ingest GUI could be used to modify the EDOS precedence in the ingest processing stream as follows:

- Reduce the volume threshold from 20,000 megabytes to 15,000 megabytes.

- Reduce the request threshold from 100 to 75.

- Change the priority from normal to low.

To modify ingest external data provider information and parameters, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Modifying External Data Provider Information

---

1   Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tool** screen (Figure 29) is displayed.

2   Click on the **Modify External Data Provider/User Information** tab.

- The **Modify External Data Provider/User Information** screen (Figure 29) is displayed.

3   Click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the data provider is to type it in the **Data Provider** field.
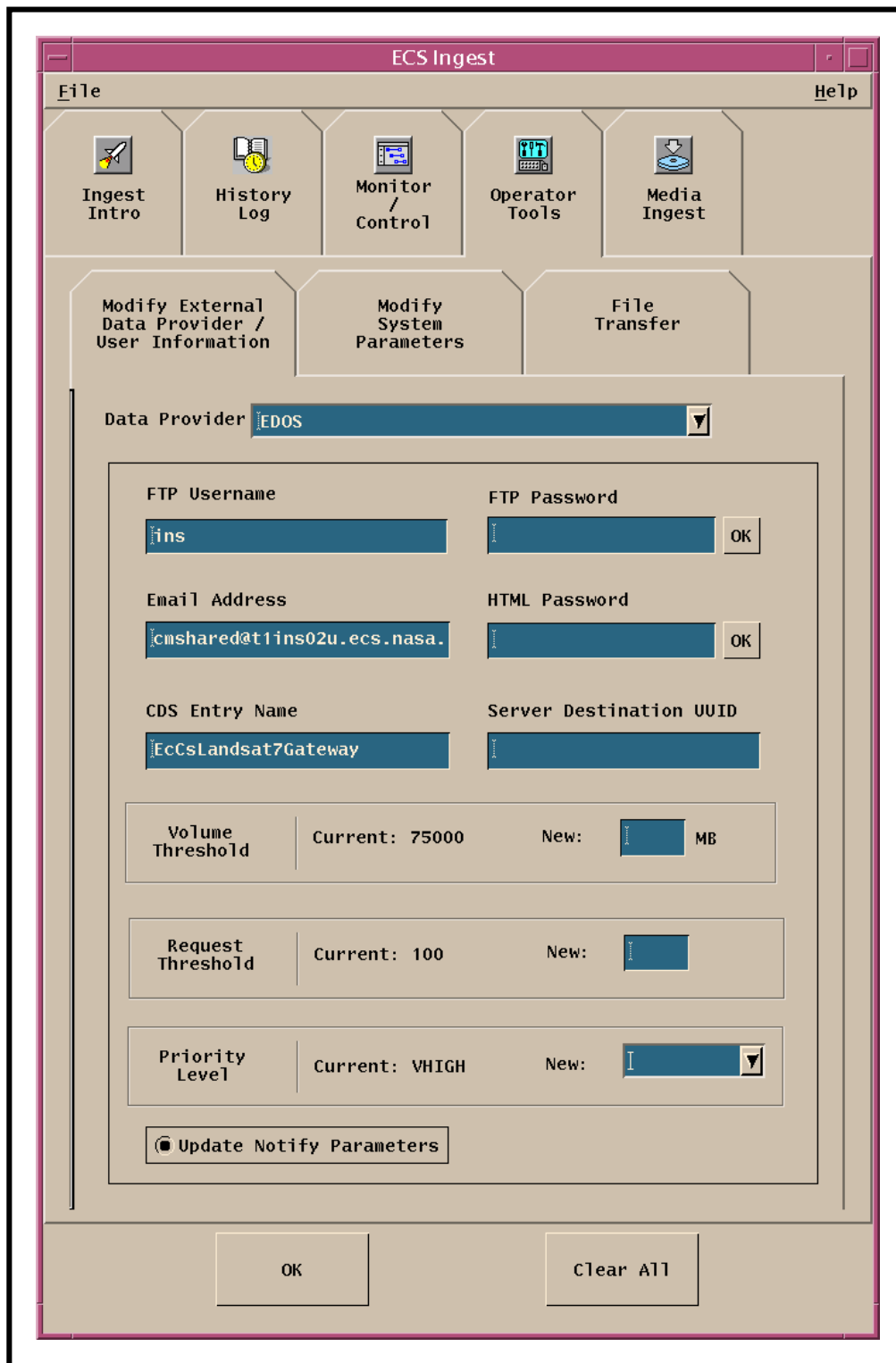
Figure 29. Ingest Data Provider Parameter Modification Screen

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- If the information concerning the selected Data Provider is to be modified on the basis of….

    – **FTP Username**, perform Step 4.

    – **FTP Password**, perform Steps 5 and 6.

    – **Email Address**, perform Step 7.

    – **HTML Password**, perform Steps 8 and 9.

    – **CDS Entry Name**, perform Step 10.

    – **Server Destination UUID**, perform Step 11.

    – **Volume Threshold**, perform Step 12.

    – **Request Threshold**, perform Step 13.

    – **Priority Level**, perform Step 14.

    – **Notify Parameters (type, ftp node, ftp directory, ftp username,** or **ftp password)**, perform Steps 15 through 22 as appropriate.

- Any or all of the preceding criteria may be modified.

4   To modify the data provider's ftp username first click in the **FTP Username** field, then type the new ftp username.

NOTE: The **Tab** key may be used to move the cursor from one field to the next.

5   To modify the data provider's ftp password first click in the **FTP Password** field, then type the new ftp password.

6   Verify that the new ftp password is correct, then click the **OK** button adjacent to the **FTP Password** field.

7   To modify the data provider's e-mail address first click in the **Email Address** field, then type the new e-mail address.

8   To modify the data provider's HTML password first click in the **HTML Password** field, then type the new HTML password.

9   Verify that the new HTML password is correct, then click the **OK** button adjacent to the **HTML Password** field.

10   To modify the data provider's CDS entry name first click in the **CDS Entry Name** field, then type the new CDS entry name.

11   To modify the data provider's server destination first click in the **Server Destination UUID** field, then type the new server destination.

12 To modify the data provider's volume threshold first click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value (e.g., 15000) for the new volume threshold.

- The *current* values for the volume threshold, request threshold, and priority are printed on the corresponding lines for reference purposes.

13 To modify the data provider's request threshold first click in the **New:** field corresponding to **Request Threshold**, then type the numerical value (e.g., 75) for the new request threshold.

14 To modify the data provider's priority level (e.g., from **Normal** to **Low**) click and hold on the option button to the right of the **Priority Level** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of changing the priority level is to type the desired priority in the **Priority Level** field.

15 To update the data provider's "notify parameters" first click on the **Update Notify Parameters** button.

- The **Notify Parameters** window (Figure 30) is displayed.

- The **Notify Parameters** window provides the Ingest/Distribution Technician with a means of changing the parameters (e.g., username or password) that the Ingest Subsystem needs in order to effectively notify a data provider of ingest activities.

16 To modify the data provider's "notify type" first click in the **Notify Type** field, then type the new notify type.

17 To modify the data provider's "notify ftp node" first click in the **Notify FTP Node** field, then type the new notify ftp node.

18 To modify the data provider's "notify ftp directory" first click in the **Notify FTP Directory** field, then type the new notify ftp directory.

19 To modify the data provider's "notify ftp username" first click in the **Notify FTP Username** field, then type the new notify ftp username.

20 To modify the data provider's "notify ftp password" first click in the **Notify FTP Password** field, then type the new notify ftp password.

21 Verify that the new notify ftp password is correct, then click the **OK** button adjacent to the **Notify FTP Password** field.

22 Click on the **OK** button to save the "Notify Parameters" and dismiss the **Notify Parameters** window.

23 Click on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.

- The changes are invoked.

Figure 30. Notify Parameters

System Parameters on the Ingest GUI

Figure 31 shows the screen for modifying system parameters that can be modified through the Ingest GUI. It has the following uses:

- Change the thresholds at which the system notifies the Ingest/Distribution Technician of the demands on system capacity being made by ingest processing.

- Set certain other system operating and display parameters.

Normally, the thresholds are left high so that processing proceeds without restriction and without excessive notification of its operation. If more frequent or sensitive indications are desired, however (e.g., during troubleshooting), it can be helpful to lower the thresholds. For example, it may be desirable to reduce the system volume threshold from 25,749 megabytes to 15,000 megabytes, and reduce the system request threshold from 1000 to 500.
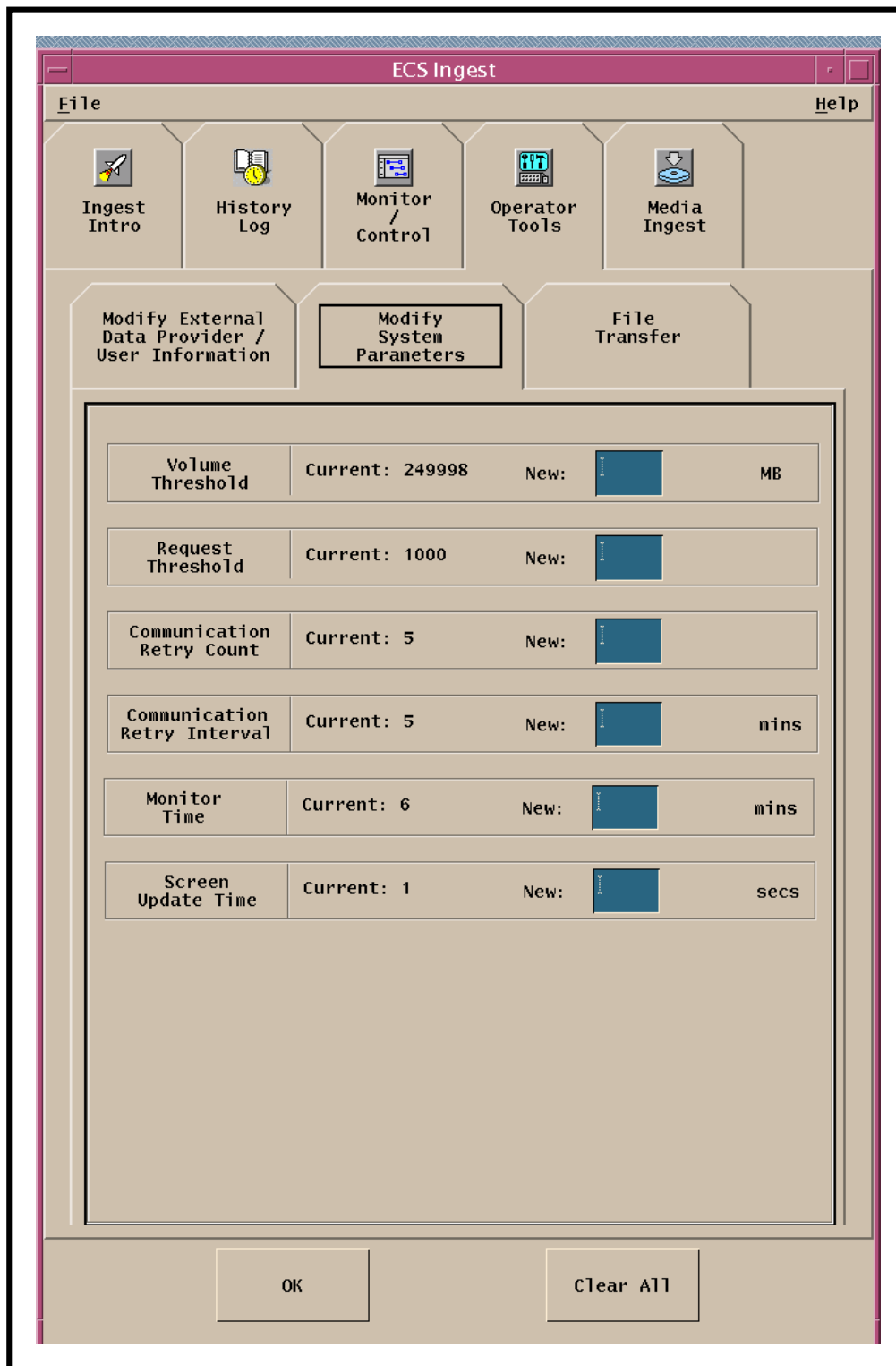
Figure 31. Ingest System Parameter Modification Screen

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The following two system parameters affect communications between external data providers and ECS:

- **Communication retry count**

    - The number of successive times the system tries to establish ingest communications with a data provider before registering a communications failure and moving on to the next ingest request.

    - If there is trouble with communication (or if troubleshooting is being performed), it may be useful to increase the communication retry count until the trouble is resolved.

- **Communication retry interval**

    - The time between successive attempts to establish communication.

    - It may be desirable to reduce the time interval for the same reasons as increasing the communication retry count.

An example of how the Ingest/Distribution Technician might adjust system parameters when a communication problem is suspected involves increasing the communication retry count from five (5) to nine (9), and reducing the communication retry interval from five (5) minutes to three (3) minutes.

The following two system parameters may be used to set the behavior of the system according to operator preference:

- **Monitor time**

    - The amount of time that information about a completed ingest transaction remains available on the Monitor/Control screen after its completion.

    - During a time when the system is operating normally and ingest activity is heavy, it may be better to set a relatively short interval so excess items are removed from the monitoring display fairly quickly.

    - If information is needed about items that have been removed from the Monitor/Control screen, it can be obtained using the History Log.

- **Screen Update Time**

    - The amount of time between automatic data updates on the Monitor/Control screen.

    - Screen updates require system processing, and this interval is normally left set at no less than five (5) seconds.

    - During troubleshooting, it may be useful to obtain more frequent updates by reducing the time interval.

Use the procedure that follows to modify Ingest Subsystem parameters that can be modified through the Ingest GUI. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Modifying System Parameters on the Ingest GUI

---

1   Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tools** screen (Figure 29) is displayed.

2   Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 31) is displayed.

- If the system parameters to be modified involve….

    – **Volume Threshold**, perform Step 3.

    – **Request Threshold**, perform Step 4.

    – **Communication Retry Count**, perform Step 5.

    – **Communication Retry Interval**, perform Step 6.

    – **Monitor Time**, perform Step 7.

    – **Screen Update Time**, perform Step 8.

3   To modify the system volume threshold first click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value (e.g., 15000) for the new volume threshold.

- The *current* values for the system parameters (i.e., volume threshold, request threshold, etc.) are printed on the corresponding lines for reference purposes.

NOTE: The **Tab** key may be used to move the cursor from one field to the next.

4   To modify the system request threshold first click in the **New:** field corresponding to **Request Threshold**, then type the numerical value (e.g., 500) for the new request threshold.

5   To modify the system communication retry count first click in the **New:** field corresponding to **Communication Retry Count**, then type the numerical value (e.g., 9) for the new communication retry count.

6   To modify the system communication retry interval first click in the **New:** field corresponding to **Communication Retry Interval**, then type the numerical value (e.g., 3) for the new communication retry interval.

7   To modify the system monitor time first click in the **New:** field corresponding to **Monitor Time**, then type the numerical value (e.g., 3) for the new monitor time.

8   To modify the system screen update time first click in the **New:** field corresponding to **Screen Update Time**, then type the numerical value (e.g., 4) for the new screen update time.

9   Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

File Transfer

The **File Transfer** tool allows the Ingest/Distribution Technician to transfer files to the science community. The file transfer tool allows the Ingest/Distribution Technician to build a System Monitoring and Coordination Center (SMC) History File or select any file to be transferred from a specified point of origin to a destination desired by the user.

To transfer files use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Transferring Files

1   Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tool** screen (Figure 29) is displayed.

2   Click on the **File Transfer** tab.

- The **File Transfer** screen (Figure 32) is displayed.

3   Click on the appropriate button from the following selections:

- **Build SMC History Files** – creates the following two types of files in the /usr/ecs/*MODE*/CUSTOM/temp/INS directory:

    - SMCHeaderFile.

    - SMCdataFile.

- **Generic File Transfer** – allows any type of directory or file to be transferred.

4   Verify that the path in the **Filter** field (in the **Transfer Origin** box) is appropriate for searching for the file to be transferred.

- If the path in the **Filter** field is **not** appropriate for searching for the file to be transferred, first click in the **Filter** field, then type the correct path.

- Ensure that the path in the **Filter** field ends with a slash and an asterisk (**/***); otherwise, no files will be listed.
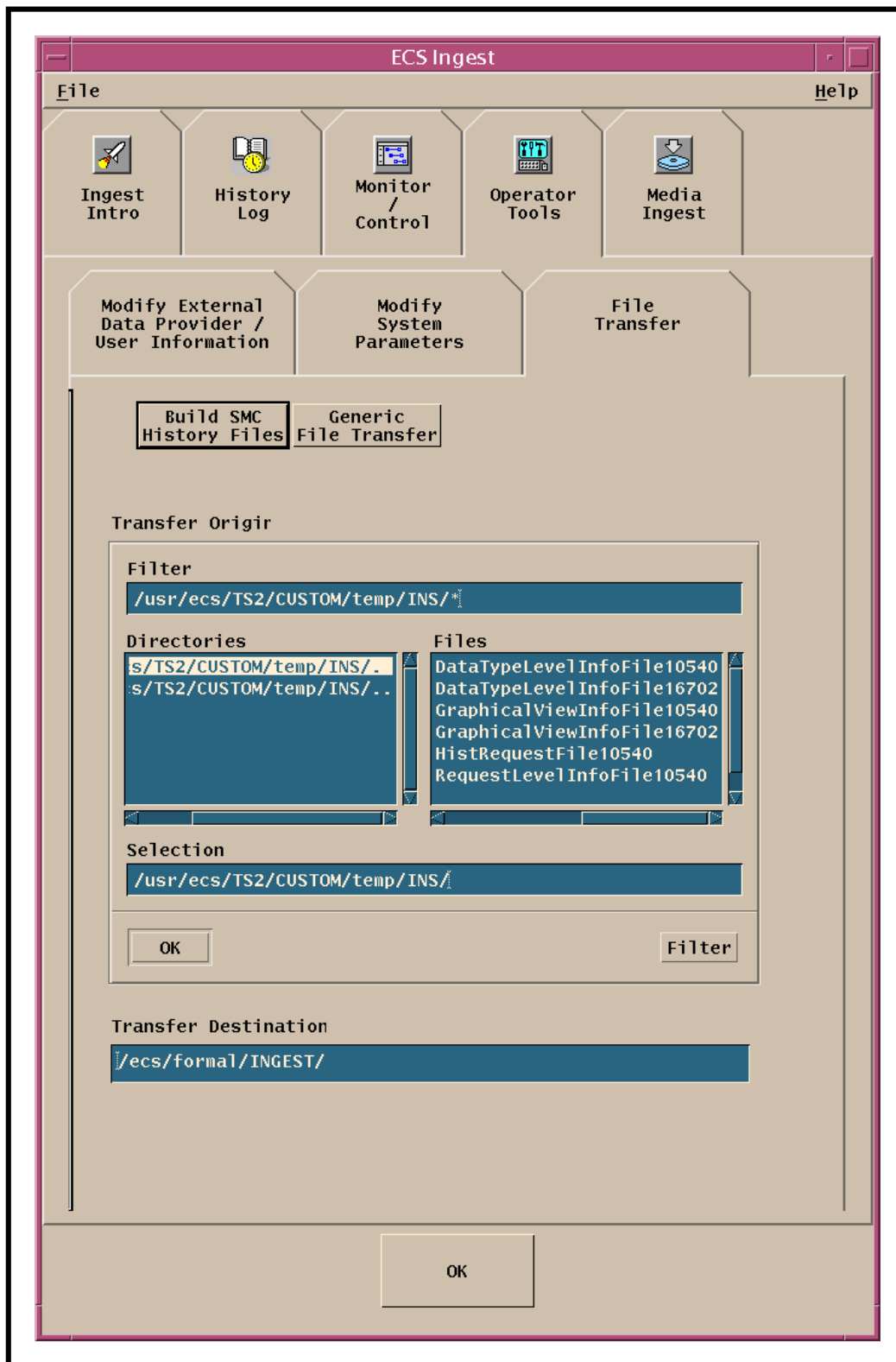
Figure 32. Ingest File Transfer Screen

5   Click on the **Filter** button.

- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.

- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

6   If the file to be transferred is not listed in the **Files** field but may be in one of the subdirectories listed in the **Directories** field, select (by clicking on the desired entry to highlight it) the subdirectory where the file may be located.

7   Click on the **Filter** button.

- The path shown in the **Filter** field is modified to include the selected subdirectory.

- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.

- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

8   Repeat Steps 6 and 7 as necessary until the file to be transferred is listed in the **Files** field.

9   In the **Files** field select (by clicking on the desired entry to highlight it) the file to be transferred.

- The highlighted file is entered into the **Selection** field.

10   Click on the **OK** button in the **Transfer Origin** box.

11   Verify that the file to be transferred (including the correct path to the file) is displayed in the **Selection** field.

- Either repeat the Steps 4 through 10 as necessary to display the file to be transferred in the **Selection** field or click in the **Selection** field and type the correct path and file name of the file to be transferred.

12   Click in the **Transfer Destination** field, then type *hostname/path* (e.g., g0drg01/usr/ecs/OPS/CUSTOM/data) to the directory/file where the file is to be transferred.

13   Click on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.

- The file is transferred.

Tuning System Parameters in the Database or Configuration Files

The values assigned to system parameters affect the functioning and performance of the system. When certain parameters are modified, the system operates differently. Changes to some other parameters may not appear to affect the system although there may in fact be subtle effects. In any case before modifying system parameters it is essential to understand what will happen to system functioning and performance.

Many system parameters may be subject to control by Configuration Management (CM). When making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable).

Values are assigned to Ingest parameters in the following places:

- Ingest database.

- Configuration files.

In general the system parameters in the database are modified using the GUIs. The system parameters specified in configuration files are modified by editing the appropriate configuration file.

A significant change in the management of system parameters is scheduled for the second delivery of Release 5B. The ECS configuration parameters specified in configuration files will be maintained in a *Configuration Registry*. The Configuration Registry Server will provide a single interface for retrieving configuration attribute-value pairs for ECS servers from the Configuration Registry Database, via a Sybase server. The Configuration Registry Database will be loaded with data from the configuration files. After the Configuration Registry is loaded the configuration files will be moved or renamed, making them inaccessible to the applicable servers. Consequently, when ECS servers are started they will access the Configuration Registry Database to obtain needed configuration parameters.

The Database Administrator will have access to a Configuration Registry GUI for viewing and editing configuration data in the database. Therefore, it will be necessary to coordinate with the Database Administrator when changes to configuration parameters are needed. Also, as previously mentioned, changes to configuration-controlled parameters are subject to approval through the site CM process.

The following parameters are specified in configuration files and are the parameters whose assigned values are most likely to be modified to enhance system functioning or performance:

- AppLogSize

  – Maximum size of the application log (ALOG) file for the application in whose configuration file the parameter is specified.

- AppLogLevel

    - Level of detail provided in the ALOG file for the application in whose configuration file the parameter is specified. A setting of "0" provides the most data.

- DebugLevel

    - Level of detail provided in the debug log file for the application in whose configuration file the parameter is specified. A setting of "3" provides the most data.

- INGEST_CONNECTION_POOL_SIZE

    - Number of database connections. The number varies with the particular program connecting to the database.

    - Single-threaded programs (i.e., EcInAuto, EcInGUI, EcInPolling) need one database connection only.

    - The number of database connections required for EcInGran depends on the maximum number of granules that can be processed at a time (as specified in the TotalGranuleThreshold column in the InGranuleServerInfo database table). For a maximum of five granules, two database connections are probably enough.

    - For the EcInReqMgr there should be at least two database connections. During end-to-end (ETE) testing at EDC, EcInReqMgr actually needed only three database connections.

- ListenThreads

    - Number of listen threads assigned to the application in whose configuration file the parameter is specified.

- RETRY_TIME_INTERVAL

    - Number of seconds before EcInAuto retries to send a request to the Request Manager. If a value for the parameter is not specified in the configuration file, a default value of 600 seconds is applied.

- SAVEONEXIT

    - Set to "true" for debug purposes only. When "true," staging disks do not get cleaned up. For Granule Server, when the SAVEONEXIT parameter is "true," the local preprocessing disk does not get cleaned up.

- SDSRV_RETRY_INTERVAL

    - Amount of time (in seconds) related to retrying remote procedure calls (RPCs) to Science Data Server.

- SDSRV_RETRY_ATTEMPTS

- – Number of tries related to retrying RPCs to Science Data Server.

- ADVERTISE_RETRY_WAIT_TIME

  - – Amount of time (in seconds) related to retrying RPCs to the advertising service.

- ADVERTISE_RETRIES

  - – Parameter (number of tries) related to retrying RPCs to the advertising service.

- ADVERTISING_SYBASE_LIMIT

  - – Number of ESDTs sent to Advertising in one request. If the value is set to zero, all ESDTs from the Ingest database are sent at once. The parameter needs to be changed only if Advertising comes up against a limitation by Sybase as to how many ESDTs it can handle in one request.

- PollingTimerInterval

  - – Amount of time (in seconds) between polling instances. The parameter is specified in the section for each applicable data provider listed in the file. The value varies depending on the data provider.

Table 1 contains a list of configuration file parameters involved in system tuning as well as some potential adjusted values.

Table 1. Ingest Configuration Parameters

File(s)	Parameter	Default Value	Adjusted Value or Range
Note: Default and adjusted values vary from site to site. The values listed in the table are provided as examples only. Refer to the appropriate 920-TDx-013 Custom Code Configuration Parameters document. The documents are available at http://cmdm.east.hitc.com/baseline/ under "Technical Documents."			
EcInAuto.CFG EcInGran.CFG EcInGUI.CFG EcInPolling.x.CFG EcInReqMgr.CFG	AppLogSize	= 50000	= 5000000
EcInAuto.CFG EcInGran.CFG EcInGUI.CFG EcInPolling.x.CFG EcInReqMgr.CFG	AppLogLevel	= 0	0 – 2 A setting of 0 provides the most data.
EcInAuto.CFG EcInGran.CFG EcInGUI.CFG EcInPolling.x.CFG EcInReqMgr.CFG	DebugLevel	= 3	0 – 3 A setting of 3 provides the most data.

Table 1. Ingest Configuration Parameters

File(s)	Parameter	Default Value	Adjusted Value or Range
EcInAuto.CFG EcInGUI.CFG EcInPolling.x.CFG	INGEST_CONNECTION_POOL_SIZE	= 1	= 1 (number of database connections) If not set, the default value is 10.
EcInGran.CFG	INGEST_CONNECTION_POOL_SIZE	= 1	= 1 (number of database connections)
EcInReqMgr.CFG	INGEST_CONNECTION_POOL_SIZE	= 1	>= 2 (number of database connections)
EcInAuto.CFG	ListenThreads	= 7	= 7 If not set, the Distributed Computing Environment (DCE) default is 10; the maximum allowed is 30.
EcInReqMgr.CFG	ListenThreads	= 30	= 30
EcInPolling.x.CFG	ListenThreads	= 20	= 20
EcInGran.CFG	ListenThreads	= 20	= 20 Refer to the section on **Configuring the Granule Server Listen Threads** (subsequent section of this lesson).
EcInAuto.CFG	RETRY_TIME_INTERVAL	= 600	= 10 (time in seconds)
EcInGUI.CFG EcInGran.CFG EcInReqMgr.CFG	SAVEONEXIT	= false	= true Set to "true" for debug purposes only.
EcInGran.CFG	SDSRV_RETRY_INTERVAL	= 15	= 15 (time in seconds)
EcInGran.CFG	SDSRV_RETRY_ATTEMPTS	= 5	= 5 (number of tries)
EcInReqMgr.CFG	ADVERTISE_RETRY_WAIT_TIME	= 10	= 15 (time in seconds)
EcInReqMgr.CFG	ADVERTISE_RETRIES	= 5	(number of tries)
EcInReqMgr.CFG	ADVERTISING_SYBASE_LIMIT	= 200	(number of ESDTs sent to Advertising in one request)
InPolling.cfg	PollingTimerInterval	= 120	(time in seconds)

Modifying System Parameters in Configuration Files

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. In addition, when making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable). Depending on circumstances (e.g., operator permissions) at a particular site, it may be necessary to request that the Operations Controller or System Administrator modify parameters in the configuration files. The procedure that follows is provided to assist Ingest/Distribution Technicians who have to modify the files themselves.

The procedure for changing system parameters specified in configuration files starts with the assumption that the Ingest/Distribution Technician has logged in to the system.

Modifying System Parameters in Configuration Files

NOTE:　　　Commands in Steps 1 through 6 are typed at a UNIX system prompt.

1　　　Type **setenv DISPLAY** *clientname***:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the *clientname*.

- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2　　　Start the log-in to the Ingest Server by typing **/tools/bin/ssh** *hostname* (e.g., **e0icg01**, **g0icg01**, **l0icg01**, or **n0icg01**) then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).

- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears; continue with Step 3.

- If you have not previously set up a secure shell passphrase; go to Step 4.

3　　　If a prompt to **Enter passphrase for RSA key '**<*user@localhost*>**'** appears, type your *Passphrase* then press the **Return/Enter** key.

- Go to Step 5.

4　　　At the <*user@remotehost*>**'s password:** prompt type your *Password* then press the **Return/Enter** key.

5　　　Type **cd /***path* then press **Return/Enter**.

- Change directory to the directory (e.g., /usr/ecs/*MODE*/CUSTOM/cfg) containing the appropriate .CFG file (e.g., EcInGran.CFG, EcInReqMgr.CFG).

- The particular path to be typed may vary from site to site.

6   Type **vi** *filename* then press **Return/Enter**.

- The configuration file is displayed by the vi text editor.

7   Using vi editor commands find *parameter* = and replace the existing value with the adjusted value.

- Table 1 contains a list of parameters used in system tuning.

- The value may already have been changed to some value other than the default value.

- The following vi editor commands are useful:

    - **h** (move cursor left).

    - **j** (move cursor down).

    - **k** (move cursor up).

    - **l** (move cursor right).

    - **i** (insert text).

    - **x** (delete a character).

    - **u** (undo previous change).

    - **Esc** (switch to command mode).

8   Press the **Esc** key.

9   Type ZZ.

- New parameter value is entered and saved in the configuration file.

- UNIX prompt is displayed.

NOTE: When the value assigned to a parameter in a configuration file has been changed and saved, the modified value does not take effect until the affected server has been restarted. For example, consider the case in which the debug level for the Request Manager log has been changed from "2" to "3" in the Request Manager configuration file. The modification does not affect the recording of data in the log until after a warm restart of the Request Manager (at which time the server would read the configuration file).

Modifying System Parameters in the Ingest Database

When making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable).

Configuring the Granule Server Listen Threads

The configuration file ListenThreads parameter for EcInGran is not used. The number of listen threads for a Granule Server is set in the software using the TotalGranuleThreshold column in the InGranuleServerInfo database table multiplied by three. The default value for the TotalGranuleThreshold is currently 40. It is not recommended that it be made greater because the Granule Server would grow too large. [If running with three modes active, especially with more than one Granule Server per mode (e.g., the Earth Resources Observation Systems Data Center (EDC) has two Granule Servers), it is possible to run out of swap space on the Ingest Server machine very quickly.] The TotalGranuleThreshold determines the maximum number of granules that a Granule Server will process at any one time.

Entries in the InGranuleServerInfo database table must be set manually via SQL commands. Refer to the section on **Modifying System Parameters in the Ingest Database Using ISQL** (subsequent section of this lesson) for the applicable procedure.

Limits on the Number of Queued Requests and Ingest Volume

The Request Manager receives requests, breaks them into granules, and queues all the granules. If the appropriate Granule Server is not processing its maximum granules (TotalGranuleThreshold from the InGranuleServerInfo table), one or more granules will be removed from the queue and sent to the Granule Server. There is no way to set the number of queued requests.

There is a maximum number of requests and maximum volume that can be processed by Ingest at one time. The corresponding parameters are specified in the MaximumTotalRequests and MaximumTotalVolume columns in the InSystemParameters database table. When a request from one of the clients (e.g., GUI or Polling) would cause one of the parameters to exceed its maximum value, the request fails and is not sent to Request Manager. The parameters can be modified using the Ingest GUI.

Limits on the Number of Requests and Data Volume from a Data Provider

For each data provider there is a maximum number of requests and a maximum data volume. The parameters are specified in the MaximumRequests and VolumeThreshold columns in the InExternalDataProviderInfo database table. When a request from one of the clients (e.g., GUI or Polling) would cause one of the parameters to exceed its maximum value, the request fails and is not sent to Request Manager. The parameters can be modified using the Ingest GUI.

Other Key Parameters for Ingest

In the InSystemParameters database table there is a parameter called MonitorTimeForCompletedRequest. The parameter specifies the number of minutes after the request has been completed that a request remains in the database tables that get displayed on the Ingest Monitor and Control GUI window. After the specified time has elapsed the request information is moved to the database summary tables and can be viewed using the Ingest GUI History Log window. The parameter can be modified using the Ingest GUI.

In the InSystemParameters table there is a ScreenUpdateInterval parameter. It specifies the number of seconds after which the GUI refreshes. The parameter can be modified using the Ingest GUI.

In the InSystemParameters table, there are the following two parameters for retrying to send a DDN to the Landsat7Gateway:

- CommunicationRetryCount.

- CommunicationRetryInterval.

The CommunicationRetryCount specifies a number of attempts to send the DDN. The CommunicationRetryInterval is in seconds. The default values installed with the database are set at five for both parameters. When a DDN is sent, the default rebinding policy of five times every five seconds is used. The CommunicationRetryCount and CommunicationRetryInterval are used for retrying the rebinding. For example, if the default values are used, then the DDN is tried a total of 25 times. The parameters can be modified using the Ingest GUI.

Number of Granule Servers at a DAAC

Each granule server can process multiple Earth Science Data Types (ESDTs), but each ESDT can only be assigned to one granule server. At EDC two granule servers are configured, one to process Landsat-7 data, the other for processing ASTER data.

Currently all granule servers run on the same machine. Distributing them to different machines would possibly do more to enhance performance.

In order to configure a granule server, there needs to be a row in the InGranuleServerInfo and InValGranuleServerUR tables. In order for a particular ESDT to be processed by a particular granule server, the GranuleServerURKey must be set to the appropriate granule server in the InDataTypeTemplate table for each data type.

Entries in the InGranuleServerInfo, InValGranuleServerUR, and InDataTypeTemplate database tables must be set manually via SQL commands. Refer to the section on **Modifying System Parameters in the Ingest Database Using ISQL** (subsequent section of this lesson) for the applicable procedure.

Modifying System Parameters in the Ingest Database Using ISQL

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. Depending on circumstances at a particular site it may be necessary to request that the Database Administrator modify parameters in the Ingest database. The procedure that follows is provided to assist Ingest/Distribution Technicians who have to make the database modifications themselves.

The procedure for changing system parameters specified in the Ingest database starts with the assumption that the Ingest/Distribution Technician has logged in to the system.

1   Access a terminal window logged in to the Ingest Server (e.g., e0icg01, g0icg01, or l0icg01).

2   Type **isql –U***userID* **-S***DBServer* then press **Return/Enter**.

- For example:

```
isql  -UEcInGran   –Sx0icg01_srvr
```

3   At the **Password:** prompt type *dbpassword* then press **Return/Enter**.

- The *dbpassword* is the password for logging in to the database using the specified *userID*.

4   Type **use** *dbname* at the **1>** prompt then press **Return/Enter**.

- The *dbname* is likely to be one of the following names:

    – **Ingest** [OPS mode].

    – **Ingest_TS1** [TS1 mode].

    – **Ingest_TS2** [TS2 mode].

5   Type **go** at the **2>** prompt then press **Return/Enter**.

6   Type **select * from** *TableName* at the **1>** prompt then press **Return/Enter**.

- For example:

```
 1> select * from InGranuleServerInfo
```

- Alternatively, type **select** *columnName* **from** *TableName* at the **1>** prompt then press **Return/Enter**.

    – For example:

```
1> select TotalGranuleThreshold from InGranuleServerInfo
```

- Another alternative is to type
  select *columnName1,columnName2[,columnName3,…]* **from** *TableName* at the **1>** prompt then press **Return/Enter**.

    – For example:

```
1> select
GranuleServerURKey,TotalGranuleThreshold,VolumeThreshold
from InGranuleServerInfo
```

7   Type **go** at the **2>** prompt then press **Return/Enter**.

- Table contents are displayed.

    – If * was specified, all entries in the table are displayed.

    – If specific columnNames were entered, the data associated with those columns only are displayed.

- For example:

```
1> select * from InGranuleServerInfo
2> go
 GranuleServerURKey TotalGranuleThreshold
        VolumeThreshold
 ----------------- ---------------------
        -----------------------------------------
                   1                 40
                             90000000000
                   2                 40
                             90000000000
                   3                 40
                             90000000000
 (3 rows affected)
```

8   Type **update** *TableName* **set** *columnName1=value1* **where** *columnName2=value2* at the **1>** prompt then press **Return/Enter**.

- For example:

```
1> update InGranuleServerInfo set TotalGranuleThreshold=10 where
GranuleServerURKey=3
```

9   Type **go** at the **2>** prompt then press **Return/Enter**.

10   Start verification of the update by typing **select * from** *TableName* (or one of the options described in Step 6) at the **1>** prompt then pressing **Return/Enter**.

11   Type **go** at the **2>** prompt then press **Return/Enter**.

- Table contents are displayed.

- Specified value should have been updated.

- For example:

```
1> select * from InGranuleServerInfo
2> go
 GranuleServerURKey TotalGranuleThreshold
        VolumeThreshold
 ----------------- ---------------------
        -----------------------------------------
                   1                 40
                             90000000000
```

```
                  2                              40
                                        90000000000
                  3                              10
                                        90000000000
```

(3 rows affected)

12 To exit from isql type **quit** at the **1>** prompt then press **Return/Enter**.

Troubleshooting Ingest Problems

Trouble Symptoms

Troubleshooting is a process of identifying the source of problems on the basis of observed trouble symptoms. One common source of problems involves the reliance on messages or data from other subsystems. Like many other operational areas in ECS, Ingest has interfaces with many other subsystems. Consequently, problems with ingest can be traced to either the Ingest Subsystem or one of many other ECS subsystems, including (but not necessarily limited to) those in the following list:

- Data Server Subsystem (DSS).

- Interoperability Subsystem (IOS).

- Communications Subsystem (CSS).

- System Management Subsystem (MSS).

However, unlike many other operational areas in ECS Ingest has interfaces with external data providers. Consequently, some ingest problems can be traced to mistakes in the delivery records furnished by the data providers or errors in transmission of the data.

Table 2 describes actions to be taken in response to some common ingest problems. If the problem cannot be identified and fixed without help within a reasonable period of time, the appropriate response is to call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 2. Troubleshooting Ingest Problems

Symptom	Response
Unable to log in to any host (e.g., Operations Workstation, g0acs02).	Check with the Operations Controller/System Administrator to ensure that the host is "up."
GUI not displayed when the start-up script has been properly invoked.	Ensure that the DISPLAY variable was set properly. [For detailed instructions refer to the procedure for **Launching the Ingest GUI** (previous section of this lesson).]
Error message associated with the Ingest GUI.	Refer to Table 3, Ingest Operator GUI User Messages (adapted from the corresponding table in 609-CD-510-002, *Release 5B Operations Tools Manual for the ECS Project*).

Table 2. Troubleshooting Ingest Problems

Symptom	Response
Message received indicating a data ingest failure.	1. Ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 4) are "up." 2. If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up using HP OpenView. 3. If hosts/servers are all "up," refer to the procedure for **Recovering from a Data Ingest Failure** (subsequent section of this lesson).
Other problems.	Check the log files (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG) in the /usr/ecs/*MODE*/CUSTOM/logs directory of the relevant host(s) for error messages. [For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).]

NOTE: When troubleshooting Ingest problems, ensure that the correct mount/host is being checked. Many types of ingest use "icl" (Ingest Client) staging areas but others may not. Media ingest (e.g., from D3 tape) typically involves staging in a "dip" (Distribution and Ingest Peripherals) area. Polling ingest for data from EDOS usually entails the use of the polling directory as the staging area. Some data are staged directly to working storage ("wks") in the Data Server Subsystem.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Can not obtain Data Delivery Record file.	Without the data delivery record file, media ingest cannot be processed.	1. If the data delivery record (e.g., **sdpf31a.PDR**) is embedded in the medium (recorded on the tape), change directory to the staging area from any Ingest or Data Server Subsystem host (e.g., **cd usr/ecs/OPS/CUSTOM/drp/*x0drg01*/data/staging**). 2. Ensure that a staging disk (e.g., user1) has been created to receive the file. 3. If the data delivery record is on a network, check the applicable directory to see if the delivery record is there. 4. If the data delivery record is on a network and the delivery record is in the applicable directory, consult with the Network Administrator to determine whether there is network problem.
Can not obtain data type for selected RequestID.	Unable to display granule level information.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Can not obtain new request id from database.	Without this information, media ingest cannot be processed.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not obtain selected data provider information.	"Modify External Data Provider/User Information" screen cannot be refreshed with the updated information.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not read the request information file.	Unable to display request/granule text view information in the text browser.	1. Access a terminal window logged in to the Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, or n0acs03). 2. Type **cd /usr/ecs/*MODE*/CUSTOM/temp/INS** then press **Return/Enter**. 3. Type **ls -al** then press **Return/Enter**. • A listing of files, including their permissions is displayed as shown in the following example: **-rw-rw--w- 1 ashelton users 110 Apr 2 11:21 GraphicalViewInfoFile982** **-rw-rw--w- 1 ashelton users 112 Mar 25 15:51 HistSummaryFile10535** **-rw-rw--w- 1 cmops cmops 220 Mar 26 11:47 RequestLevelInfoFile11000** 4. Review the file permissions to determine whether the GUI has permission to read the file to which it is trying to gain access. • In the preceding example "read" access to the RequestLevelInfoFile is restricted to members of the cmops group but virtually any user has "read" access to the other files. 5. Whether or not the GUI has "read" permission for the file, notify the System Administrator of the problem and/or submit a trouble ticket.
Can not retrieve data based on search criteria.	Unable to display History Log information.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not update selected data provider information.	Cannot update InExternalDataProviderInfo table for the specified data provider.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not update the system threshold information.	Cannot update InSystemParameters table with new values.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Data Delivery Record filename needs to be specified.	Without this information, media ingest cannot be submitted.	1. Type the data delivery record file name (e.g., **sdpf31a.PDR**) in the **Data Delivery Record File Name** field. 2. Click on the **OK** button at the bottom of the GUI.
Data Delivery Record location needs to be specified.	Without this information, media ingest cannot be submitted.	1. Click on the appropriate radio button in the **Data Delivery Record File Location** box. • Click on the **On Network** button if the PDR file is located on the network. • Click on the **Embedded in Media** button if the PDR file is recorded on the tape. 2. Click on the **OK** button at the bottom of the GUI.
Data not found for search criteria.	Unable to display History Log information.	Select/enter other search criteria. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Data not found for search criteria.	Unable to display the **Monitor/Control** screen request text view information for the search criteria.	Notify the Database Administrator of the database problem that needs to be corrected.
Data Provider ID needs to be provided.	Without this information, media ingest cannot be submitted.	1. To enter the data provider (e.g., **SDPF**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button. 2. Click on the **OK** button at the bottom of the GUI.
Data Provider is not authorized for ingest.	Unable to perform Media Ingest for the data provider.	Resolve the issue with the data provider.
Deallocate device failure.	Media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
Destination MUST be host/path (e.g. kodiak/tmp).	Cannot perform file transfer.	1. Click in the **Transfer Destination** field, then type *hostname*/*path* (e.g., g0drg01/usr/ecs/OPS/CUSTOM/data) to the directory/file where the file is to be transferred. 2. Click on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
Destination MUST be provided.	Cannot perform file transfer.	1. Click in the **Transfer Destination** field, then type *hostname*/*path* (e.g., g0drg01/usr/ecs/OPS/CUSTOM/data) to the directory/file where the file is to be transferred. 2. Click on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Detail Level needs to be set.	Unable to display History Log information.	1. Click on either the **Detailed Report** button or the **Summary Report** button. 2. If the **Summary Report** button was selected in the preceding step, click on either the **Request level** button or the **Granule level** button. 3. Click on the **Display** button.
Dismount media failure.	Media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
FTP failed.	File failed the ftp file transfer.	Notify the Network Administrator of the problem.
Invalid input value.	Unable to display History Log information.	Enter a valid input value. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Invalid Old Password.	Unable to perform password confirmation.	Enter the correct old password. [For detailed instructions refer to the procedure for **Modifying External Data Provider Information** (previous section of this lesson).]
Invalid Start Time.	Unable to display the History Log information.	Enter a valid start time. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Invalid Stop Time.	Unable to display the History Log information.	Enter a valid stop time. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Invalid time interval.	Unable to display the History Log information (e.g., the specified stop time may precede the specified start time).	Enter correct start and stop times. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Media Ingest Request completed.	N/A	For information only. No action is necessary.
Media Type needs to be set.	Without this information, media ingest cannot be submitted.	1. To enter the type of medium (i.e., **8mm Tape**) click and hold on the option button to the right of the **Media Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button. 2. Click on the **OK** button at the bottom of the GUI.
New password does not match what was originally typed.	Unable to perform password confirmation.	Re-enter the correct new password. [For detailed instructions refer to the procedure for **Modifying External Data Provider Information** (previous section of this lesson).]

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
No data matching search criteria.	Unable to display the request text view information for the search criteria.	Notify the Database Administrator of the database problem that needs to be corrected.
Printer name is not specified.	Unable to print the currently displayed information.	Enter a valid printer name.
Priority Level needs to be set.	Unable to change the priority for the selected request.	1. Click and **hold** the option button to the right of the **Priority** button to display a menu of priorities, move the mouse cursor to the desired selection (highlighting it), then release the mouse button. 2. To implement the priority change click on the **OK** button at the bottom of the GUI.
Request Control Status: Success.	N/A	For information only. No action is necessary.
Request Threshold exceeds the system request threshold.	Cannot update InExternalDataProviderInfo table for the specified data provider.	1. Click on the **Modify System Parameters** tab. 2. Observe the current value for the system request threshold. 3. Click on the **Modify External Data Provider/User Information** tab. 4. Click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button. 5. Click in the **New:** field corresponding to **Request Threshold**, then type the numerical value for the new request threshold, ensuring that the value entered for the new request threshold is less than the system request threshold specified on the **Modify System Parameters** tab. 6. Click on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.
RequestID selected is not a valid integer.	Unable to display granule level information.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Select new file and push the file selection OK button.	Cannot perform file transfer.	1. In the **Files** field select (by clicking on the desired entry to highlight it) the file to be transferred. 2. Click on the **OK** button in the **Transfer Origin** box. 3. Verify that the file to be transferred (including the correct path to the file) is displayed in the **Selection** field. 4. Verify that the hostname/path to which the file is to be transferred is typed in the **Transfer Destination** field. 5. Click on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
SMC History File Build Failed.	Unable to build SMC history file.	Notify the Database Administrator of the database problem that needs to be corrected.
Stacker ID needs to be specified.	Without this information, media ingest cannot be submitted.	1. Type the stacker ID in the **Stacker ID** field. 2. Verify that the stacker slot ID has been typed in the **Stacker Slot ID** field. 3. Click on the **OK** button at the bottom of the GUI. [For detailed instructions refer to the procedure for **Performing Media Ingest from 8mm Tape** (previous section of this lesson).]
Stacker Slot ID needs to be specified.	Without this information, media ingest cannot be submitted.	1. Type the stacker slot ID in the **Stacker Slot ID** field. 2. Click on the **OK** button at the bottom of the GUI. [For detailed instructions refer to the procedure for **Performing Media Ingest from 8mm Tape** (previous section of this lesson).]
Unable to allocate a media device.	Without the allocation of the media device, media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
Unable to copy data files to staging disk.	Without the data files, media ingest cannot be processed.	1. Change directory to the staging area from any Ingest or Data Server Subsystem host (e.g., **cd usr/ecs/OPS/CUSTOM/drp/*x0drg01*/data/staging**). 2. Ensure that a staging disk (e.g., user1) has been created to receive the file. 3. Verify that there is adequate disk space to receive data files (e.g., **df -k .**) 4. If there is not enough disk space, notify the System Administrator of the problem and/or submit a trouble ticket.

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Unable to obtain data provider list.	"Modify External Data Provider/User Information" screen cannot be used to update InExternalDataProviderInfo table.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain data provider list.	Unable to build the list for Data Provider combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain data type list.	Unable to build the list for Data Type combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain final request status list.	Unable to build the list for Final Request Status combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain the data provider list.	Unable to build the list for Data Provider combo box on Monitor/Control screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain the system information.	"Modify System Parameters" screen cannot be used to update the InSystemParameters table.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to process request control.	Unable to perform the selected request control.	1. Ensure (e.g., using ECS Assistant) that the Ingest Server (e.g., x0icg01) and Ingest Request Manager (EcInReqMgr) are "up." 2. If either the host or server has gone down, notify the Operations Controller/System Administrator to have host/server brought back up using HP OpenView. 3. If host and server are "up," refer to the procedure for **Recovering from a Data Ingest Failure** (subsequent section of this lesson).

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Unable to process the request.	Media ingest cannot be processed.	1. Ensure (e.g., using ECS Assistant) that the Ingest Server (e.g., x0icg01) and Ingest Request Manager (EcInReqMgr) are "up." 2. If either the host or server has gone down, notify the Operations Controller/System Administrator to have host/server brought back up using HP OpenView. 3. If host and server are "up," refer to the procedure for **Recovering from a Data Ingest Failure** (subsequent section of this lesson).

Unable to read the history log.	Unable to display History Log information.	1. Access a terminal window logged in to the Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, or n0acs03).
		 2. Type **cd /usr/ecs/*MODE*/CUSTOM/temp/INS** then press **Return/Enter**.
		 3. Type **ls -al** then press **Return/Enter**.
		    • A listing of files, including their permissions is displayed as shown in the following example:
		 -rw-rw--w- 1 ashelton users 306 Mar 31 13:43 HistDataTypeFile1428
		 -rw-rw--w- 1 cmops cmops 110 Apr 2 11:21 HistRequestFile12989
		 -rw-rw--w- 1 ashelton users 112 Mar 25 15:51 HistSummaryFile10535
		 -rw-rw--w- 1 ashelton users 220 Mar 26 11:47 RequestLevelInfoFile11000
		 4. Review the file permissions to determine whether the GUI has permission to read the file to which it is trying to gain access.
		    • In the preceding example "read" access to the HistRequestFile is restricted to members of the cmops group but virtually any user has "read" access to the other files.
		 5. Whether or not the GUI has "read" permission for the file, notify the System Administrator of the problem and/or submit a trouble ticket.

Unable to request mount media service.	Without the mount, media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
Update is not allowed without password confirmation.	Unable to perform password update.	Click on the password confirmation **OK** button to perform password confirmation prior to password update. [For detailed instructions refer to the procedure for **Modifying External Data Provider Information** (previous section of this lesson).]

Table 3. Ingest Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Value entered is not a valid integer.	Unable to display History Log information.	Enter a valid integer value. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Value entered is not a valid integer.	Unable to monitor/control the specified request ID.	Enter a valid integer request ID. [For detailed instructions refer to the procedure for **Viewing the Ingest History Log** (previous section of this lesson).]
Volume ID is empty.	Without this information, media ingest cannot be submitted.	1. Type the media volume ID in the **Media Volume Id (Barcode)** field. 2. Click on the **OK** button at the bottom of the GUI. [For detailed instructions refer to the procedure for **Performing Media Ingest from 8mm Tape** (previous section of this lesson).]
Volume Threshold exceeds the system volume threshold.	Cannot update InExternalDataProviderInfo table for the specified data provider.	1. Click on the **Modify System Parameters** tab. 2. Observe the current value for the system volume threshold. 3. Click on the **Modify External Data Provider/User Information** tab. 4. Click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button. 5. Click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value for the new volume threshold, ensuring that the value entered for the new volume threshold is less than the system volume threshold specified on the **Modify System Parameters** tab. 6. Click on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.

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Table 4. Hosts, Servers, Clients and Other Software Relevant to Ingest

HOST	SERVER/CLIENT/OTHER SOFTWARE
Ingest Server (e.g., x0icg01)	Automated Network Ingest Interface (EcInAuto)
	Automated Polling Ingest Client Interface (EcInPolling)
	Ingest E-Mail Parser (EcInEmailGWServer)
	Ingest Request Manager (EcInReqMgr)
	Ingest Granule Server (EcInGran)
	Ingest FTP Server (EcDsStIngestFtpServer)
	Staging Disk Server (EcDsStStagingDiskServer)
Distribution Server (e.g., x0dis02)	8mm Server (EcDsSt8MMServer)
	D3 Server (EcDsStD3Server)
Working Storage (e.g., x0wkg01)	Archive Server (EcDsStArchiveServer)
	Staging Monitor Server (EcDsStStagingMonitorServer)
	Staging Disk Server (EcDsStStagingDiskServer)
	Ingest FTP Server (EcDsStIngestFtpServer)
SDSRV Server (e.g., x0acs03)	Science Data Server (EcDsScienceDataServer)
	HDF EOS Server (EcDsHdfEosServer)
Access/Process Coordinators (APC) Server (e.g., x0acg01)	Archive Server (EcDsStArchiveServer)
	FTP Distribution Server (EcDsStFtpDisServer)
	Staging Monitor Server (EcDsStStagingMonitorServer)
	Staging Disk Server (EcDsStStagingDiskServer)
	Ingest FTP Server (EcDsStIngestFtpServer)
	Pull Monitor Server (EcDsStPullMonitorServer)
FSMS Server (e.g., x0drg01)	Archive Server (EcDsStArchiveServer)
	Staging Monitor Server (EcDsStStagingMonitorServer)
	Staging Disk Server (EcDsStStagingDiskServer)
Interface Server 01 (e.g., x0ins02)	Advertising Server (EcIoAdServer)
Interface Server 02 (e.g., x0ins01)	Subscription Server (EcSbSubServer)
	Event Server (EcSbEventServer)
	Data Dictionary (EcDmDictServer)

Recovering from a Data Ingest Failure

The automated ingest processes (including network and polling interfaces) normally do not require intervention by the Ingest/Distribution Technician. However, when an ingest fault (error) occurs, there may be a requirement for action to recover from the error. Recovery actions may be made necessary by invalid DAN contents or other errors that result in data ingest failure.

When a fault (error) occurs, the following actions occur:

- The processing of the ingest request stops.

- A message is sent to the Ingest/Distribution Technician and the data provider with a brief description of the problem.

The Ingest/Distribution Technician may use the Ingest GUI Monitor/Control screen, the Ingest History Log (refer to the section on Ingest Status Monitoring) and/or the following log files (in the /usr/ecs/*mode*/CUSTOM/logs directory on the ingest host machine) to review the failure event:

- EcInReqMgr.ALOG (ingest request manager log).

- EcInAuto.ALOG (automated network ingest log).

- EcInPolling.ALOG (automated polling ingest log).

- EcInGran.ALOG (granule server log).

- EcInGUI.ALOG (Ingest GUI log).

This section contains some examples of faults that are likely to occur, describes the notifications provided, and proposes operator actions in response to each fault situation. The specific recovery actions may vary due to operator preference or local DAAC policy.

When troubleshooting a data ingest failure, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

Troubleshooting a Data Ingest Failure

---

1 Upon receipt of the operator alert, use the **Monitor/Control** screen scroll bars as necessary to identify the faulty ingest request.

- When there is a data ingest failure, the system provides the following three responses:

  - Logs the error.

  - Alerts the Ingest/Distribution Technician.

  - Returns a DAA/PDRD (DAN/PDR error) or DDN/PAN (retrieval problem) to the data provider indicating the nature of the failure.

  - Note that ECS does not send PDRDs to EDOS.

2 Review the information concerning the faulty ingest request.

3   If additional information is needed, open and read the appropriate log file in the **/usr/ecs/*mode*/CUSTOM/logs** directory on the ingest host machine.

- For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).

4   Perform the appropriate recovery procedure depending on the nature of the problem:

- **Recovering from a Faulty DAN.**

- **Recovering from Exceeding the Volume Threshold.**

- **Recovering from Exceeding the Maximum Number of Concurrent Requests.**

- **Recovering from Insufficient Disk Space.**

- **Recovering from Exceeding the Expiration Date/Time Period.**

- **Recovering from File Transfer (ftp) Error.**

- **Recovering from Processing Errors.**

- **Recovering from D3 Ingest Failures.**

Recovering from a Faulty DAN

If a DAN/PDR is invalid, ECS sends the data provider a DAA/PDRD to that effect and the data provider must submit a new DAN/PDR. The Ingest/Distribution Technician should respond to the error by contacting the data provider to give an alert that the ingest failure has occurred, provide as much information as possible about why the failure occurred, and determine whether the data ingest request will be re-initiated.

When working to recover from an invalid DAN/PDR, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from a Faulty DAN/PDR

1   Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.

- Discuss what has been discovered from reviewing the failure event data.

- Determine whether the data provider will re-initiate the data ingest request with a new DAN/PDR.

2   If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Exceeding the Volume Threshold

Data Ingest may fail for reasons other than invalid DAN/PDR contents. For example, if the specified system volume threshold has been exceeded, the system sends a DDN/PAN to the Data Provider indicating that the system is full and an attempt should be retried again later.

If a data provider's volume threshold has been exceeded, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Volume Threshold

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1   If it is decided to increase the system volume threshold, first click on the **Operator Tools** tab.

- The **Operator Tools** screen (Figure 29) is displayed.

2   Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 31) is displayed.

3   Click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value for the new volume threshold.

- The *current* value of the volume threshold is printed on the corresponding line for reference purposes.

4   Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

5   Click on the **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 9) is displayed.

6   Click on the **All Requests** button.

- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the procedure for **Monitoring Ingest Requests**.

7   Click on the **Text View** button.

8   If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Exceeding the Maximum Number of Concurrent Requests

If the specified system request threshold has been exceeded, the system sends a DDN/PAN to the Data Provider indicating that the system is full and an attempt should be retried again later. If a data provider's request threshold has been exceeded, use the procedure that follows to increase the system request threshold. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Maximum Number of Concurrent Requests

---

1   If it is decided to increase the system request threshold, first click on the **Operator Tools** tab.

- The **Operator Tools** screen (Figure 29) is displayed.

2   Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 31) is displayed.

3   Click in the **New:** field corresponding to **Request Threshold**, then type the numerical value for the new volume threshold.

- The *current* value of the request threshold is printed on the corresponding line for reference purposes.

4   Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

5   Click on the **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 9) is displayed.

6   Click on the **All Requests** button.

- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the procedure for **Monitoring Ingest Requests**.

7   Click on the **Text View** button.

8   If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Insufficient Disk Space

After the receipt of the DAN/PDR**,** a disk space allocation is requested from the Data Server, and a time-out timer for the disk allocation is set. In the event that the Data Server has insufficient disk space, the time-out timer will expire. The Ingest Subsystem notifies the operator that the ingest request is waiting for Data Server disk allocation. Upon receipt of the alert, the Ingest/Distribution Technician must decide whether to wait for disk space to be allocated automatically or to cancel the request.

Recovering from Exceeding the Expiration Date/Time Period

If data are unavailable but the time period during which that data were to have been made available has expired, the error is logged in the event log, and a DDN/PAN is sent to the Data Provider indicating expiration date/time exceeded. The Ingest/Distribution Technician receives an alert on his/her screen, then contacts the data provider to resolve the problem.

If a data provider's expiration date/time period has been exceeded, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Expiration Date/Time Period

1   Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.

- Discuss what has been discovered from reviewing the failure event data.

- Determine whether the data provider will re-initiate the data ingest request.

2   If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from File Transfer (ftp) Error

After numerous unsuccessful data transfer retries, an error is logged into the event log, the Ingest/Distribution Technician is notified and a DDN/PAN is sent to the Data Provider indicating ftp failure. The Ingest/Distribution Technician reviews all current ingest requests using the **Monitor/Control** (**All Requests)** screen of the **ECS Ingest** GUI to determine whether other communication-related failures have occurred and may consult with the data provider(s) to resolve the problem.

If it is necessary to recover from a file transfer error, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from File Transfer (ftp) Error

1 Review all current ingest requests using the Ingest GUI **Monitor/Control** (**All Requests)** screen to determine whether there are other failures that may be communication-related.

2 If there are other failures that may be communication-related, contact the DAAC Resource Manager to determine whether the ftp error is indeed communication-related and how to respond to the problem.

3 If it is decided either to increase the communication retry count or to re-initiate the ingest request, click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tools** screen (Figure 29) is displayed.

4 Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 31) is displayed.

5 Review the current value for **Communication Retry Count**.

6 If it is decided to increase the communication retry count, follow the procedure for **Modifying System Parameters**.

7 Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.

- Discuss what has been discovered from reviewing the failure event data.

- Determine whether the data provider will re-initiate the data ingest request.

8 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Processing Errors

Ingest processing errors may require Ingest/Distribution Technician intervention. The following problems are examples of processing errors.

- **Missing Required Metadata.**

- **Unknown Data Type.**

- **Template Out of Synchronization (Sync).**

- **Unavailable File Type.**

- **Metadata Validation Error.**

- **Missing Optional Data Files.**

If it is necessary to recover from a processing error, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Processing Errors

1   If the processing error involves missing required metadata or an unknown data type, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

2   If the processing error involves an out-of-sync template or an unavailable file type, submit a trouble ticket in accordance with the trouble ticketing procedures.

3   If the processing error involves an out-of-sync template or an unavailable file type, contact (by telephone or e-mail) the data provider to request the data provider to re-initiate ingest when the problem has been fixed.

4   If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions indicate to continue inserting the data, contact (by telephone or e-mail) the data provider to provide notification that the data have been flagged as bad.

- If the processing template instructions indicate to continue inserting the data, the following events occur:

    - The error is logged in the event log,

    - The data are flagged as bad.

- A preprocessing failure alert for each data granule appears on the Ingest/Distribution Technician's screen.

- A Metadata Problem Report is generated.

5 If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions require the rejection of the data, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

- If the template instructions require the rejection of the data, the normal notices and alerts are sent, including a DDN/PAN to the external data provider indicating the preprocessing failure.

6 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from D3 Ingest Failures

If it is necessary to recover from a D3 ingest processing error, use the procedure that follows. The procedure starts with the assumptions that the operator has logged in to the ECS system and the appropriate hosts and the Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

Recovering from D3 Ingest Failures

1 If the configuration registry has not been implemented at the site, change the value assigned to the SAVEONEXIT parameter to "true" in the EcInReqMgr.CFG file.

- For detailed instructions refer to the section on **Modifying System Parameters in Configuration Files** (preceding section of this lesson).

- If the configuration registry has been implemented at the site, coordinate the change of value assigned to SAVEONEXIT with the Database Administrator.

2 Make a request to the Operations Controller to perform a warm restart of the Ingest Request Manager (EcInReqMgr) so the server will read the configuration change.

- While the SAVEONEXIT parameter is true, the staging disk for each D3 ingest request will not get automatically deleted when the request has completed.

- Each D3 staging disk will need to be manually deleted when it is no longer needed.

3 Make a request to the Operations Controller to set up an instance of Polling with delivery record to be used for D3 recovery.

- Use MEDIA_RECOVERY as the "data provider" if it is available.

- If MEDIA_RECOVERY is not available, use ASTER_GDS.

4   If using ASTER_GDS polling, change the TransferFlag in the InExternalDataProviderInfo database table to 0 so the files on the staging disk do not get transferred by ftp again.

- For detailed instructions refer to the section on **Modifying System Parameters in the Ingest Database Using ISQL** (preceding section of this lesson).

5   Make a request to the Operations Controller to run the instance of polling that is to be used for D3 recovery.

6   Start a D3 ingest request using the Ingest GUI by performing the procedure for **Performing Media Ingest from D3 Tape** (preceding section of this lesson).

7   Verify that the D3 ingest request is successfully submitted to the Request Manager.

- A pop-up window is displayed on the GUI when the request has been submitted successfully to the Request Manager.

8   Search the EcInGUI.ALOG file for the message "Staging disk allocation succeeded for RequestID=" concerning the D3 ingest request by performing the procedure for **Checking Log Files** (subsequent section of this lesson)

- The message includes the staging disk tag in the following format: *storagemgmtkey*:**Disk::***n*

- The *n* corresponds to the user*n* directory (e.g., user1, user2) for the appropriate staging disk server.

    – For example, **DIP1_OPS:Disk::2** could refer to the following path: /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/staging/user2.

9   If the PDR is not in the *IngestGUIInputData* directory, access a terminal window logged in to the appropriate host for getting access to the PDR.

- *IngestGUIInputData* can be found in the EcInGUI.CFG file in the /usr/ecs/*MODE*/CUSTOM/cfg directory on the Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03); for example,
  ```
  IngestGUIInputData        = /CUSTOM/icl/t1icg01/data/LOCALDISK
  ```
- Either of the following hosts is acceptable:

    – Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03).

    – Ingest Server (e.g., e0icg01, g0icg01, l0icg01, n0icg01) host.

10 If the PDR is not in the *IngestGUIInputData* directory, before the request completes type **cd /usr/ecs/***MODE***/***IngestRemotePostModeBasePath***/***dataprovider***/Request** then press the **Return/Enter** key

11   Type **ls –la** then press the **Return/Enter** key to list the contents of the directory.

   - A list of subdirectories and files in the current directory is displayed.

   - The list should include the PDR for the D3 ingest request.

12   Type **cp** *filename* **/***path* then press the **Return/Enter** key

   - Copy the PDR file to another location so that it can be edited.

   - The *filename* represents the PDR file for the D3 ingest request.

   - The *path* represents the path to the directory where the PDR file can be stored while it is being edited.

13   When the D3 ingest request completes, observe the request state on the Ingest GUI Monitor/Control window.

   - If the request state is "Successful," no recovery is necessary.

   - If the request state is "Partial_Failure" or "Failed," a decision must be made as to whether recovery should be attempted (depending on what errors occurred).

     – The decision can be made using the PAN, the granule states, and the Ingest log files.

     – Double-clicking on the request on the Ingest GUI displays the granule states.

     – The PAN can be found in the following directory:
     /usr/ecs/*MODE*/*IngestRemotePostModeBasePath*/*dataprovider*/Response

     – *IngestRemotePostModeBasePath* is specified in the EcInReqMgr.CFG file; for example:
     ```
     IngestRemotePostModeBasePath   = /CUSTOM/icl/x0icg01/data/remote
     ```

   - If it is decided not to attempt to do any recovery or if the request state is "Successful," go to Step 34.

14   Access a terminal window logged in to the appropriate host for getting access to the PAN.

   - Either of the following hosts is acceptable:

     – Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03).

     – Ingest Server (e.g., e0icg01, g0icg01, l0icg01, n0icg01) host.

15   Type **cd /usr/ecs/***MODE***/***IngestRemotePostModeBasePath***/***dataprovider***/Response** then press **Return/Enter**.

16   Type **ls –la** then press the **Return/Enter** key to list the contents of the directory.

   - A list of subdirectories and files in the current directory is displayed.

   - The list should include the PAN for the D3 ingest request.

17   Type **pg** *filename* then press Return/Enter.

- *filename* refers to the PAN file to be reviewed.

- The first page of the PAN file is displayed.

- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view, more**) can be used to review the PAN file.

18   Review the PAN file to identify which granule(s)/file(s) had errors.

- Even if all files in the granule do not show errors, they are all needed to perform the recovery.

19   If the PDR is in the *IngestGUIInputData* directory, type **cd /usr/ecs/*MODE*/*IngestRemotePostModeBasePath*/*dataprovider*/Request** then press the **Return/Enter** key

20   If the PDR is in the *IngestGUIInputData* directory, type **ls –la** then press the **Return/Enter** key to list the contents of the directory.

- A list of subdirectories and files in the current directory is displayed.

- The list should include the PDR for the D3 ingest request.

21   If the PDR is in the *IngestGUIInputData* directory, type **cp** *filename* **/path** then press the **Return/Enter** key

- Copy the PDR file to another location so that it can be edited.

- The *filename* represents the PDR file for the D3 ingest request.

- The *path* represents the path to the directory where the PDR file can be stored while it is being edited.

22   Type **vi** *filename* then press **Return/Enter**.

- The PDR file is displayed by the vi text editor.

23   Using vi editor commands edit the copied PDR to use for the granule(s) to be recovered.

- Remove the file groups that are not being recovered.

- Change the TOTAL_FILE_COUNT to reflect the number of files left in the PDR.

- Change the ORIGINATING_SYSTEM to the data provider being used for Polling.

- Change all DIRECTORY_ID fields from NOT_USED to the staging disk path determined in Step 8.

- For each file group, need to add "NODE_NAME = <hostname>;" with the hostname where the files are.

    - For example, NODE_NAME = e0dis01;.

- The following vi editor commands are useful:

  - **h** (move cursor left).

  - **j** (move cursor down).

  - **k** (move cursor up).

  - **l** (move cursor right).

  - **i** (insert text).

  - **x** (delete a character).

  - **u** (undo previous change).

  - **Esc** (switch to command mode).

24   Press the **Esc** key.

25   Type ZZ.

- New values are entered and saved in the PDR file.

- UNIX prompt is displayed.

- If desired, rename the PDR so the corresponding PAN file will have a different name from that of the original tape request.

26   Type **mv** *filename* **/***path* then press **Return/Enter**.

- The *path* represents the path to the polling directory; e.g., /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollMEDIA_RECOVERY or /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollASTER_GDS.

- The PDR file is moved to the polling directory.

27   Observe the new D3 ingest request on the Ingest GUI Monitor/Control window.

28   When the D3 ingest request completes, observe the request state on the Ingest GUI Monitor/Control window.

- If the request fails and needs to be resubmitted, go to Step 29.

- If the request completed successfully or if it is determined that retrying it will not make it successful, go to Step 30.

- If it is decided not to attempt to do any recovery or if the request state is "Successful," go to Step 34.

29   If the request fails and needs to be resubmitted, make a request to the Operations Controller to perform a cold restart of polling (i.e., pollMEDIA_RECOVERY or pollASTER_GDS, as applicable).

- The PDR will be repolled.

30   Access a terminal window logged in to the appropriate host for getting access to the PDR.

- Either of the following hosts is acceptable:
    - Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03).
    - Ingest Server (e.g., e0icg01, g0icg01, l0icg01, n0icg01) host.

31   Type **cd /***path* then press **Return/Enter**.

- The *path* represents the path to the polling directory; e.g., /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollMEDIA_RECOVERY or /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollASTER_GDS.

32   Type **ls –la** then press the **Return/Enter** key to list the contents of the directory.

- A list of subdirectories and files in the current directory is displayed.
- The list should include the PDR for the D3 ingest request.

33   Type **rm** *filename* then press Return/Enter.

- *filename* refers to the PDR file to be deleted.
- The PDR file is deleted.

34   In a terminal window type **cd /***path* then press **Return/Enter**.

- The *path* represents the path to the directory above the staging disk directory; e.g., if the staging disk path is /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/staging/user2, go to the /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/staging directory.

35   Type **rm -rf user***n* then press **Return/Enter** to delete the staging disk and the files in it.

36   Make a request to the Operations Controller to perform a warm restart of the appropriate staging disk server.

- The staging disk server will synchronize its database with the actual staging disks in use.

37   Repeat Steps 6 through 36 (as necessary) to perform additional D3 media ingests.

38   When all D3 media ingests for the session have been completed, if the configuration registry has not been implemented at the site, change the value assigned to the SAVEONEXIT parameter to "false" in the EcInReqMgr.CFG file.

- For detailed instructions refer to the section on **Modifying System Parameters in Configuration Files** (preceding section of this lesson).
- If the configuration registry has been implemented at the site, coordinate the change of value assigned to SAVEONEXIT with the Database Administrator.

39   Make a request to the Operations Controller to perform a warm restart of the Ingest Request Manager (EcInReqMgr) so the server will read the configuration change.

Checking Log Files

Log files can provide indications of the following types of problems:

- DCE problems.

- Database problems.

- Lack of disk space.

The procedure for checking log files starts with the assumption that the operator has logged in to the ECS system and the appropriate host.

Checking Log Files

1 Access a terminal window logged in to the appropriate host.

- Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03) has the following ingest log files:

    - EcInGUI.ALOG.

- Ingest Server (e.g., e0icg01, g0icg01, l0icg01, n0icg01) host has the following ingest log files:

    - EcInReqMgr.ALOG.

    - EcInAuto.ALOG.

    - EcInPolling.ALOG.

    - EcInGran.ALOG.

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

- Change directory to the directory containing the ingest log files (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG).

3 Type **pg** *filename* then press Return/Enter.

- *filename* refers to the ingest log file to be reviewed (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG).

- The first page of the log file is displayed.

- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view, more**) can be used to review the log file.

4 Review the log file to identify problems that have occurred.

5   Respond to problems as follows:

- DCE problems.

    - Notify the Operations Controller/System Administrator of suspected DCE problems.

- Database problems.

    - Verify that relevant database servers are running.

    - Check for lack of (or corruption of) data in the database using either a database browser or isql commands.

    - Notify the Database Administrator of suspected database problems.

- Lack of disk space.

    - Remove unnecessary files.

    - Notify the Operations Controller/System Administrator of recurring disk space problems.

Practical Exercise

Introduction

This exercise is designed to give the students practice in key aspects of ingest.

Equipment and Materials

One ECS workstation per student.

Statement of the requirements for the exercise.

Release 5B Operations Tools Manual for the ECS Project, 609-CD-510-002, one copy per student.

Mission Operation Procedures for the ECS Project, 611-CD-510-001, one copy per student.

Launching the ECS Ingest GUI

The exercise involves launching the ECS Ingest GUI using UNIX commands. The exercise begins with a student acting in the role of Ingest/Distribution Technician recognizing the need to launch the ECS Ingest GUI. The student launches the ECS Ingest GUI as specified in the requirements.

Perform the following steps:

1. Access the command shell.

2. Log in to the Operations Workstation using secure shell.

3. Set the necessary environmental variables.

4. Start the ECS Ingest GUI in the appropriate mode.

Launching the Storage Management Control GUI

The exercise involves launching the Storage Management Control GUI using UNIX commands. The exercise begins with a student acting in the role of Ingest/Distribution Technician recognizing the need to launch the Storage Management Control GUI. The student launches the Storage Management Control GUI as specified in the requirements.

Perform the following steps:

1. Access the command shell.

2. Log in to the Distribution Server host using secure shell.

3. Set the necessary environmental variables.

4. Start the Storage Management Control GUI in the appropriate mode.

Monitoring/Controlling Ingest Requests

The exercise involves monitoring ingest requests using the ECS Ingest GUI Monitor/Control screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician being cued to monitor ingest requests. The student monitors ingest requests and resumes or cancels requests as specified in the requirements.

Perform the following steps:

1. Select the ECS Ingest GUI Monitor/Control tab.

2. Select the appropriate set of ingest requests.

3. Select the type of view (i.e., graphical or text).

4. Observe ingest request processing.

5. Resume/cancel requests as directed.

6. Respond to questions concerning the current status of ingest requests.

Viewing the Ingest History Log

The exercise involves viewing the ingest history log using the ECS Ingest GUI History Log screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for viewing the history log entries concerning specified ingest requests. The student selects the appropriate criteria and has the GUI display the history log as specified in the requirements.

Perform the following steps:

1. Select the ECS Ingest GUI History Log tab.

2. Select the time period, data provider, data type, and/or final request status as specified in the requirements for the exercise.

3. Select Detailed Report or Summary Report as specified in the requirements for the exercise.

4. Display the history log report.

5. Respond to questions concerning the history log report.

Verifying the Archiving of Ingested Data

The exercise involves verifying the archiving of ingested data. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for verifying the archiving of ingested data. The student determines whether the data specified in the requirements has actually been archived.

Perform the following steps:

1. Access the command shell.

2. Log in to the FSMS host.

3. Change directory to the directory containing the archive data.

4. Perform a long listing of directory contents.

5. Compare End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Cleaning the Polling Directories

The exercise involves cleaning the polling directories using the clean-up script. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for cleaning the polling directories using the clean-up script. The student runs the clean-up script as specified in the requirements.

Perform the following steps:

1. Access the command shell.

2. Log in to the ingest client host.

3. Type the command to start the clean-up script.

4. Type appropriate responses to clean-up script prompts.

Performing Media Ingest (from 8mm and/or D3 Tape)

The exercise involves ingesting data from an 8mm or D3 tape cartridge. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for performing ingest from a hard (physical) medium. The student has the Ingest Subsystem ingest data from the tape cartridge as specified in the requirements.

Perform the following steps:

1. Select the ECS Ingest GUI Media Ingest tab.

2. Identify the type of medium.

3. Enter the stacker ID (if applicable).

4. Insert the tape cartridge.

5. Enter the stacker slot ID (if applicable).

6. Select the data provider.

7. Enter the media volume ID.

8. Identify the delivery record file location.

9. Initiate and monitor the data transfer.

Scanning Documents and Gaining Access to Scanned Documents

The exercise involves scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for scanning a document. The student scans the document and checks the resulting file as specified in the requirements for the exercise.

Perform the following steps:

1. Start the scanning program.

2. Select the **Save Image Defer OCR** option.

3. Load documents into the HP ScanJet feeder.

4. Start the scanning process.

5. Save the document.

6. Open the scanned document.

7. Review the document to verify that it has been properly scanned.

Modifying External Data Provider Information

The exercise involves modifying external data provider information (e.g., passwords, thresholds, or priority) using the ECS Ingest GUI Operator Tools: Modify External Data Provider/User Information screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for modifying the information concerning an external data provider. The student makes the appropriate modifications (as specified in the requirements) to the information concerning the data provider.

Perform the following steps:

1. Select the ECS Ingest GUI Operator Tools: Modify External Data Provider/User Information tab.

2. Select the data provider (as specified in the requirements for the exercise) whose information is to be changed.

3. Modify the data provider information as specified in the requirements for the exercise.

4. Save the changes to data provider information.

Modifying System Parameters Using the ECS Ingest GUI

The exercise involves modifying Ingest operating parameters (e.g., thresholds, intervals) using the Ingest GUI Operator Tools: Modify System Parameters screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary

information/requirements for modifying the Ingest operating parameters. The student makes the appropriate modifications (as specified in the requirements) to the Ingest operating parameters.

Perform the following steps:

1. Select the ECS Ingest GUI Operator Tools: Modify System Parameters tab.

2. Modify the Ingest operating parameters as specified in the requirements for the exercise.

3. Save the changes to Ingest operating parameters.

Transferring Files Using the ECS Ingest GUI

The exercise involves transferring files using the ECS Ingest GUI Operator Tools: File Transfer screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for transferring files. The student transfers the file(s) specified in the requirements.

Perform the following steps:

1. Select the ECS Ingest GUI Operator Tools: File Transfer tab.

2. Select either Build SMC History Files or Generic File Transfer as specified in the requirements for the exercise.

3. Select the file(s) (as specified in the requirements for the exercise) to be transferred.

4. Enter the destination (as specified in the requirements for the exercise) of the file(s) to be transferred.

5. Initiate and monitor the file transfer.

Modifying System Parameters in Configuration Files

The exercise involves modifying system parameters in configuration files. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/ requirements for modifying system parameters in configuration files. The student modifies a system parameter in a configuration file as specified in the requirements.

Perform the following steps:

1. Access the command shell.

2. Log in to the Ingest Server using secure shell.

3. Access the directory containing the appropriate .CFG file.

4. Edit the applicable parameter(s).

5. Save the file.

Modifying System Parameters Using ISQL

The exercise involves modifying Ingest database parameters that cannot be modified using the Ingest GUI. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/ requirements for modifying system parameters in the Ingest database. The student modifies a system parameter in the Ingest database using isql as specified in the requirements.

Perform the following steps:

1. Access the command shell.

2. Log in to the Ingest Server using secure shell.

3. Log in to the appropriate Ingest database using isql commands.

4. Check the current contents of the relevant column/table.

5. Update the relevant column/table with the new value(s).

6. Check the current contents of the relevant column/table.

7. Exit from isql.

Troubleshooting Ingest Problems

The exercise involves troubleshooting and recovering from a data ingest failure (e.g., a faulty DAN, exceeding the volume threshold, insufficient disk space, or ftp error). The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for troubleshooting a data ingest failure. The student troubleshoots the failure specified in the requirements, identifies and recovers from the problem.

Perform the following steps:

1. Select the ECS Ingest GUI Monitor/Control tab.

2. Identify the faulty ingest request.

3. Review the information concerning the ingest fault.

4. Perform the appropriate recovery procedure depending on the nature of the problem (as specified in the requirements for the exercise).

Slide Presentation

Slide Presentation Description

The following slide presentation represents the slides used by the instructor during the conduct of this lesson.

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